DID UNCLE SAM STEAL $130 BILLION OF SHAREHOLDERS' MONEY? BY ROGER PARLOFF P. 112

FORTUNE

DECEMBER 1, 2015

FORTUNE.COM

THE 2015 BUSINESS PERSON OF THE YEAR

#1

MARK PARKER
CEO, NIKE

TIM COOK
APPLE

ROBERT IGER
DISNEY

MARK ZUCKERBERG
FACEBOOK

MARY DILLON
ULTA BEAUTY

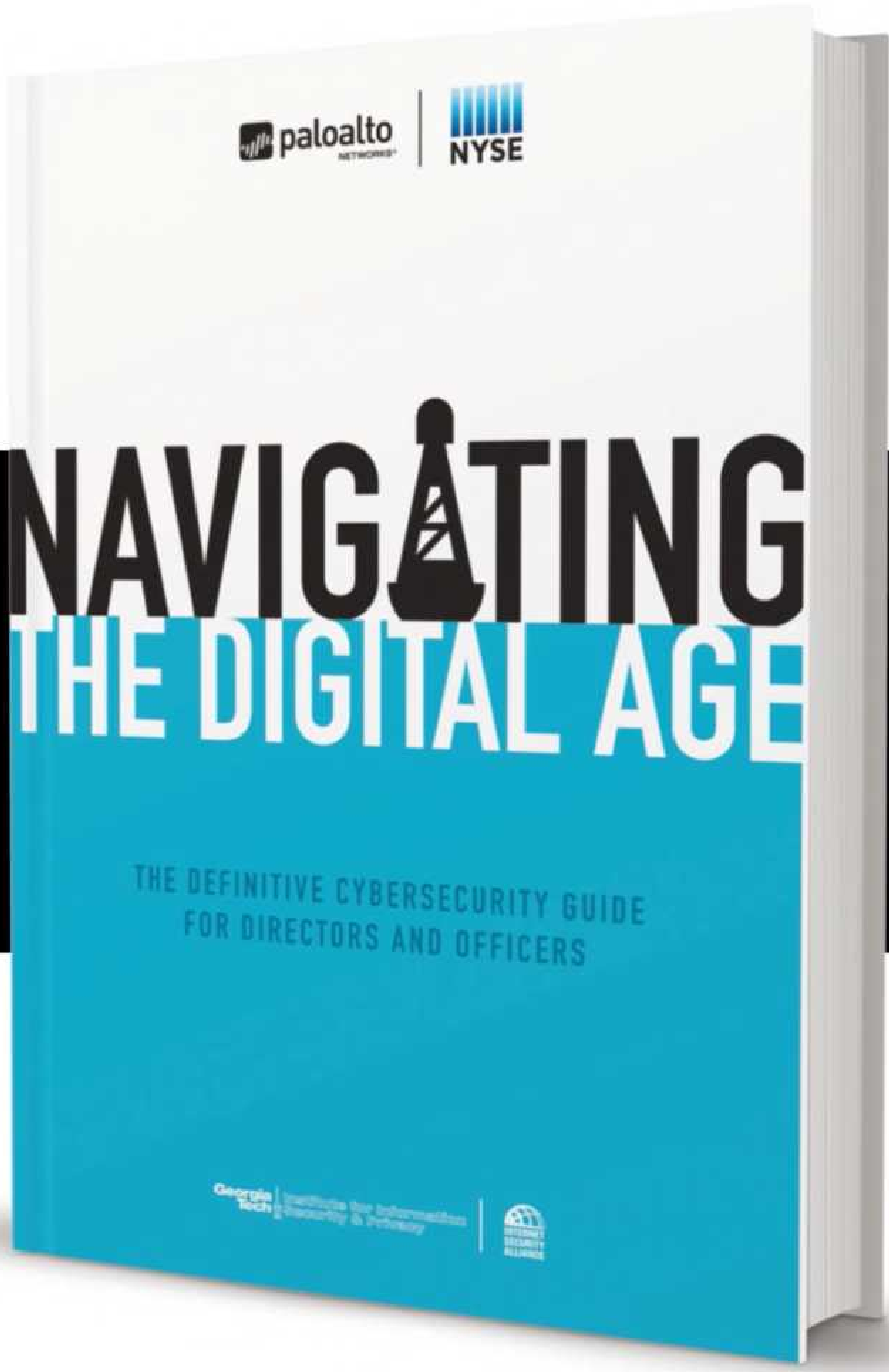
TRAVIS KALANICK
UBER

AND THE REST OF OUR SIZZLING TOP 20

HE'S DOUBLED NIKE'S REVENUES AND PROFITS AND BOOSTED ITS STOCK PRICE SIXFOLD. HERE'S HOW HE ENGINEERED ONE OF CORPORATE AMERICA'S HOTTEST WINNING STREAKS.

BY ADAM LASHINSKY P. 94

paloalto NETWORKS | NYSE




Equity Summary Score
by StarMine
CVL
Very Bullish
Bullish
Neutral
Bearish
Very Bearish
Very Bullish
9.2
Trade Confirmation:
1250 shares of CVL
Commission:
$7.95
Fidelity Notebook
Today's Events
$2.33
$0.23
CARSON GENETICS (CVL)
$13.80
0.02 (0.14%)
Buy
Sell
Potential Opportunities Ahead

Volume 172 Number 7

FORTUNE

features

Electronic Arts CEO Andrew Wilson: No. 3 on our list of the top people in business

ON THE COVER:
PHOTOGRAPH BY SPENCER LOWELL

THIS PAGE:
PHOTOGRAPH BY BENJAMIN RASMUSSEN

FORTUNE

departments

Disney's Star Wars reboot will be a merchandising bonanza, thanks to new toys like droid BB-8 (at right).

Macro

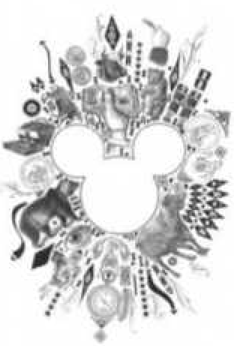
Venture

Theranos CEO Elizabeth Holmes

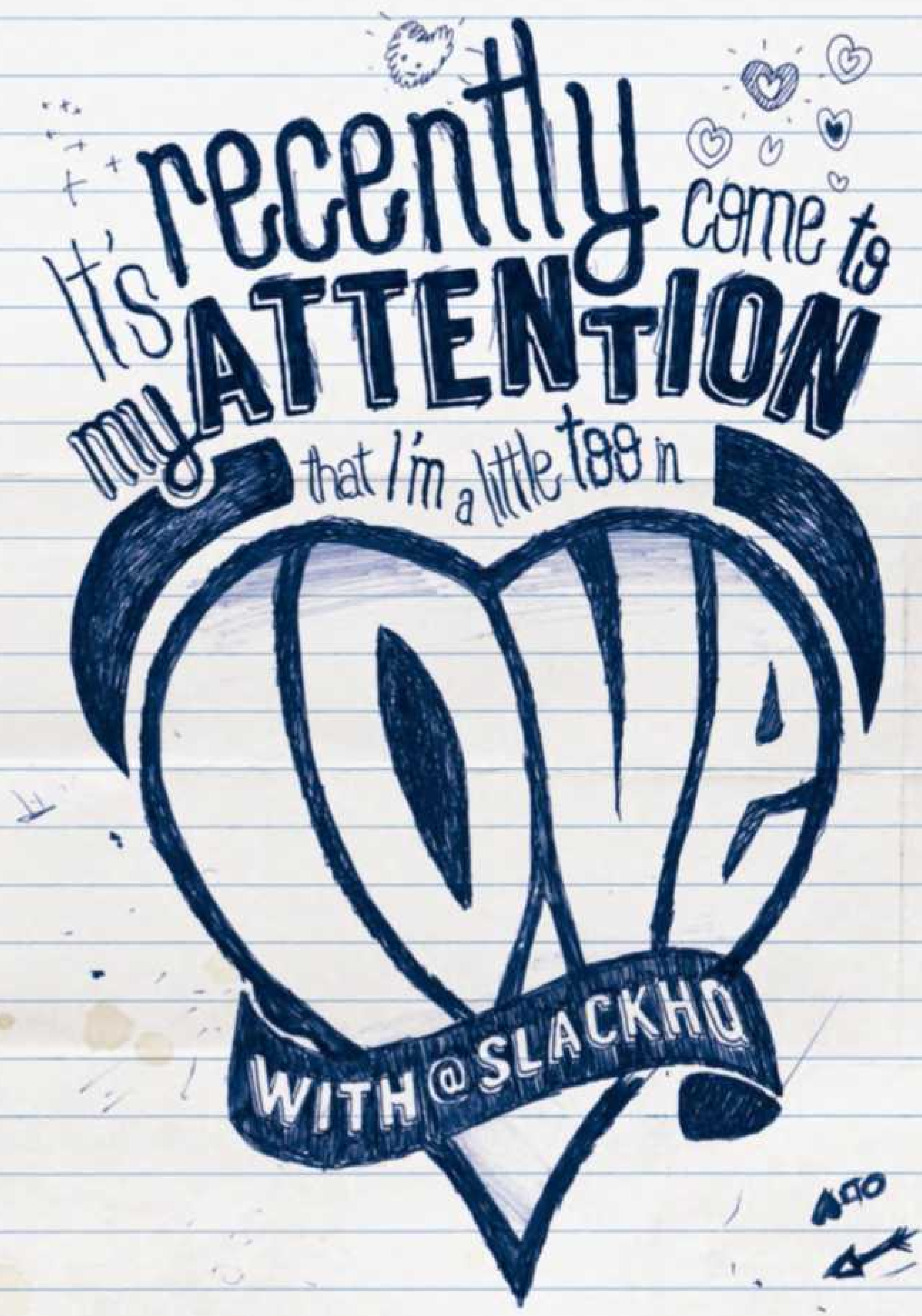
Pursuits

Tech

Invest



STAR WARS TOYS: COURTESY OF HASBRO; HOLMES: STUART ISETT—FORTUNE GLOBAL FORUM



We’re blushing, **@RonnellSmith**. Thank you.

We like to think Slack’s changing the way teams communicate. But don’t take our word for it.
slack.com/love

slack
Work on purpose

We Are All Technology Companies Now

THE 13TH *FORTUNE* GLOBAL Forum, attended by CEOs from around the world, was a rare gathering of leaders from both sides of the great divide separating old companies and new, public and private, East Coast and West Coast, centenarians and unicorns (see page 28).

The clash of worldviews pervaded the San Francisco event. XPrize founder Peter Diamandis favored the new, saying, "It isn't that entrepreneurs are smarter, it's that they are trying more crazy ideas, taking more shots on goal." Investor Marc Andreessen dinged the old for having "shareholder bases that do not want them to do new things, and instead want them to give back cash." Larry Page, when asked if there was any existing company "that you look at and say, 'That's kind of what we want to be,'" replied, "Um, no."

Such views were balanced by those of CEOs whose companies have survived for over a century and who plan to continue that run: IBM, Wells Fargo, Siemens, Lockheed Martin, Campbell Soup, Levi Strauss. CEO Joe Kaeser said Siemens has remade half its product offerings in just the past decade to stay relevant. IBM CEO Ginni Rometty repeated her mantra that the key to survival was to "always disrupt yourself." Their collective message: We've been around this long for a reason; don't count us out.

At the end of three days of discussion and debate, four clear takeaways emerged. And they're worth repeating.

WE ARE ALL TECHNOLOGY COMPANIES NOW. Monsanto CEO Hugh Grant was at the forum the day his company announced a new deal with John Deere, the 178-year-old tractor company, to stream real-time data on soil and crop conditions back to Monsanto headquarters (see page 67). If John Deere is a tech company, who isn't? Adam Lashinsky's profile in this issue of our Businessperson of the Year, Nike CEO Mark Parker, makes the same case (see page 94).

COMPETITION CAN COME FROM ANYWHERE. Cisco chairman John Chambers predicted the connected economy will hit business much faster than expected, "with 500 billion connected devices by 2025," rather than the 25 billion some predict. One result of this digital explosion is that traditional boundaries separating industries will blur. Asked who is his most dangerous competitor, Wells Fargo CEO John Stumpf replied, "The people who are influencing us the most are outside our industry—the Apples, the IBMs, the Amazons."

THE GREATEST CHALLENGE ISN'T TECH, BUT PEOPLE. Leaders from Salesforce's Marc Benioff and Yahoo's Marissa Mayer to Aetna's Mark Bertolini said creating the right culture is the central challenge for surviving technology-driven change. "Only a baby with a wet diaper likes change," J.C. Penney chairman Mike Ullman told the group. The aim is to cultivate a workplace mind-set that embraces it anyway.

CHINA SLOWDOWN OR NOT, DEVELOPING MARKETS REMAIN KEY. GE vice chair John Rice talked about the challenges and opportunities created by an explosion of cities around the globe. "You had Beijing and Shanghai, Delhi and Mumbai. Now it's Delhi, Mumbai, Hyderabad, Pune, Bangalore, and 10 other places that are important to us, in a hundred countries around the world."

Which brings up another bit of wisdom for forward-looking execs: J.P. Morgan CEO Jamie Dimon challenged attendees to focus on opportunities, rather than the potential downside. "Don't be so damned depressed," he told the group. "We have all become risk experts and are afraid of our own shadow. Move on. The world is going to be fine."

ALAN MURRAY
Editor
@alansmurray

PHOTOGRAPH BY WESLEY MANN


INSURE YOUR NOW. ENSURE YOUR FUTURE.
We know your life is about more than insurance. That´s why State Farm is too. So when you´re ready to take charge of your retirement, talk to one of our registered agents. They´ll build you a personalized free Client Portfolio Report. Just call to set up an appointment.
State Farm
79A74KN
Minimal investable assets of $100,000 are required to complete the free Client Portfolio Report.
State Farm • Bloomington, IL


A STAR ALLIANCE MEMBER
Hard deadlines.
Rough day.
Smooth finish.
Air travel engineered around you
Nonstop you
Make your time with us all yours. Because we engineer your travel experience to be exactly what you need it to be from the last checked email to your first taste of relaxation. Lufthansa wants you to sit back and enjoy your trip even before you arrive at your destination.
Lufthansa
LH.com/us/nonstopyou

CLOSER LOOK

THE 2016 *Fortune* Crystal Ball

REMEMBER: YOU SAW IT HERE FIRST. WE BRING YOU OUR PREDICTIONS ABOUT THE EVENTS, PEOPLE, AND IDEAS THAT WILL MATTER IN 2016.

PRESIDENTIAL ELECTION YEARS bring out the Nostradamus in all of us. But beyond the White House horse race, there will be plenty of other big changes to anticipate in 2016 in business, culture, and the economy. With humility, we've assembled our own educated guesses about the year ahead. Our forecast: Look for Apple and Serena Williams to keep soaring while Pfizer and GE get smaller. As tech euphoria collides with reality, expect some unicorns to lose their horns while others disappear. Cyberespionage will rise sharply; interest rates will not. There will be big breakthroughs in how you get around, including an affordable "hoverboard." And most important, there will be modest but real GDP growth—between 2.6% and 2.8% in the U.S., higher in emerging economies—as a resilient world defies fears of a China-driven crash.

CONTRIBUTORS: Scott Cendrowski, Scott DeCarlo, Erika Fry, Stephen Gandel, Ben Geier, Erin Griffith, Robert Hackett, Armin Harris, Matt Heimer, Tom Huddleston Jr., Beth Kowitt, Alan Murray, Tory Newmyer, Leena Rao, Daniel Roberts, Benjamin Snyder, Aaron Task, Anne VanderMey, Phil Wahba, Jen Wieczner, Valentina Zarya

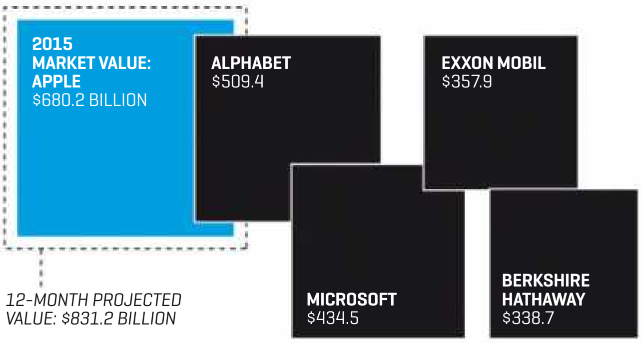
ILLUSTRATIONS BY **MARTÍN LAKSMAN**

APPLE WILL BUY TESLA ...

Apple has announced plans to build an electronic car, targeting 2019. It could dramatically accelerate this timetable by buying Tesla. With over $200 billion in cash on hand, the iPhone maker has more than ample resources. In addition to its automobile know-how, Apple will get access to Tesla's battery technology, which CEO Elon Musk claims can help change "the entire energy infrastructure of the world." Apple will also get Musk—a "think different" leader ideally suited to be Apple's futurist, chief technologist, and CEO-in-waiting.

... WHILE BECOMING THE WORLD'S FIRST $800 BILLION COMPANY

Apple posted nearly a quarter-trillion dollars in revenue in fiscal 2015, and analysts have an average 12-month price target of $149 for its stock, which would give it a market capitalization of $831 billion. To get there, Apple shares would have to rise 22%. But given its recent track record of smartphone market-share gains and strong growth in emerging economies, such a leap seems realistic.



UNICORN INVESTING WILL TURN UGLY

Some prominent venture capitalists expect a unicorn die-off, as billion-dollar startups suffer from tumbling valuations. (Cracks are already showing at Dropbox, Evernote, and, of course, Theranos.) As prices fall, the opaque world of private tech investing will get really messy. Sales of startup shares on secondary markets will proliferate as investors flee bad bets. Expect wild discrepancies in valuations; finger-pointing among investors, boards, and CEOs; and even some shareholder activism.

JACK DORSEY WILL END THE YEAR WITH JUST ONE JOB

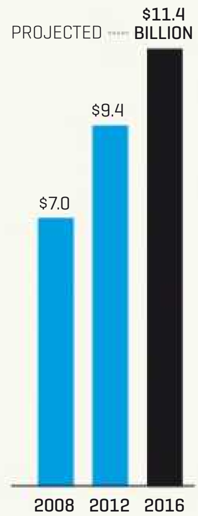
Steve Jobs spent nearly a decade as CEO of both Apple and Pixar—but don't expect Dorsey to follow that path. Not too long after payments technology company Square goes public, Dorsey will leave the company while staying on as permanent CEO of the other tech giant he co-founded, Twitter. As a newly public company, Square needs a seasoned chief who can weather Wall Street's demands for growth, says Sucharita Mulpuru, analyst at Forrester Research; Twitter, on the other hand, needs Dorsey's design expertise. (One possible successor to Dorsey: Jacqueline Reses, Yahoo's former chief development officer, who just joined Square.)

BALLOT BATTLES

CAMPAIGN AD SPENDING WILL GET EVEN MORE OBSCENE

You may already have debate fatigue: Prepare yourself for campaign-ad overdose. Thanks to the continuing rise of Super PAC money, political advertising across platforms and races will exceed that of 2012, the last presidential-election year, by more than 20%, according to research firm Borrell Associates.

POLITICAL AD SPENDING IN PRESIDENTIAL-ELECTION YEARS



GRAPHIC SOURCES: *FORTUNE* ESTIMATE; S&P CAPITAL IQ; JACK DORSEY—ILLUSTRATION BY ERIC SCOTT PFEIFFER

ANOTHER SIX STATES GO GREEN (WITH LEGAL POT)

FOUR STATES PLUS WASHINGTON, D.C., have now legalized recreational pot, and Colorado and Washington are raking in millions of dollars in marijuana tax revenue. Several more states could join the party next year, when the presidential election will increase turnout among younger, pot-friendly voters. Initiatives to land legalization on the ballot are well underway in Arizona, California, Maine, Massachusetts, Michigan, and Nevada, while a handful of other states could also put the issue to a vote. Ohio's "no" vote this fall isn't a good bellwether of national opinion: The latest Gallup poll shows 58% of Americans back legalization. It's not difficult to envision another six states opening their arms and treasuries.

THE DEMOCRATS WILL (NARROWLY) RETAKE THE SENATE

Yes, off-year elections this year showed a rightward tilt. But just two years after Democrats lost control of the upper chamber, they're poised to snatch it back. The party needs to pick up five seats—four, if they can hold on to the White House. Republicans will be defending 24 seats, while Democrats have only 10 in play.

THIS GOP TICKET ...

Nikki Haley

Marco Rubio

Florida Sen. Marco Rubio, an increasingly effective communicator who straddles the warring wings of his party, will emerge from the GOP primary scrum as the nominee. Doubling down on the "youthful D.C. outsider" image he intends to press against Hillary Clinton, Rubio will tap South Carolina Gov. Nikki Haley, 43, as his running mate. Haley's handling of the Confederate flag controversy expanded her support among constituencies—including African Americans and self-identified Democrats—that will be key to any Republican victory.

... WILL TAKE ON THESE DEMOCRATS

Tim Kaine

Hillary Clinton

Hillary Clinton will enjoy a nearly unimpeded march to her party's nomination. But the primaries will underscore her troubling weakness among white working-class men. Clinton will address that by rounding out her ticket with Virginia Sen. Tim Kaine, a Harvard-educated former civil rights lawyer who's nonetheless got lunch-bucket cred as the successful former governor of a Southern state. Bonus: Kaine speaks fluent Spanish.

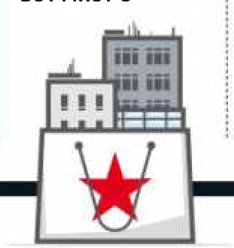
OBAMA TAKES A PARTING SHOT AT BIG DONORS

President Obama has long lamented the Supreme Court's 2010 *Citizens United* decision, which allowed a torrent of unregulated money to flood the political process. [He's called the ruling a "threat to democracy."] As he leaves office, Obama will address the issue with a stroke of his pen—an executive order requiring federal contractors to disclose their contributions to dark-money groups.

GRAPHIC SOURCE: ARCVIEW GROUP; RUBIO: IDA MAE ASTUTE—ABC/GETTY IMAGES; HALEY: SEAN RAYFORD—GETTY IMAGES; CLINTON: RANDY HOLMES—ABC/GETTY IMAGES; KAINE: MARK WILSON—GETTY IMAGES; OBAMA: ANDREW BURTON—GETTY IMAGES

1,130 *FORTUNE* 500 BOARD SEATS WILL BE HELD BY WOMEN. THE NUMBER OF WOMEN SERVING AS *FORTUNE* 500 CEOs FELL IN 2015. BUT BOARDROOMS ARE A DIFFERENT STORY. AS MORE EVIDENCE LINKS BOARDROOM DIVERSITY TO BETTER PERFORMANCE, WE ESTIMATE THAT THE NUMBER OF FEMALE DIRECTORS WILL CLIMB 7% IN 2016—TO 21% OF THE TOTAL.

HUDSON'S BAY WILL BUY MACY'S



Canada's Hudson's Bay Co. has snapped up Lord & Taylor, Saks Fifth Avenue, and German department store Kaufhof in recent years—all underperforming chains that owned attractive real estate. That description could also fit Macy's, perhaps the most alluring trophy in the department-store world. Macy's would be a big bite: Its market cap is about $16.5 billion. But HBC has proved adept at funding big deals by spinning off real estate from previous acquisitions.

MACRO

THE 2016 *FORTUNE* CRYSTAL BALL

WE'LL GET GOOD NEWS IN THE ALZHEIMER'S FIGHT

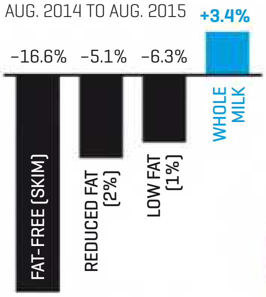
Existing Alzheimer's therapies treat only the symptoms of the memory-robbing condition, not the disease itself. And between 2002 and 2012, a staggering 99.6% of drugs in development failed. But 2016 should deliver a breakthrough: By year's end, Eli Lilly's solanezumab—a drug 15 years in the making—will pass muster in clinical tests and be well on its way to FDA approval as a therapy for mild Alzheimer's.

FULL FAT WILL BE THE NEW FAT-FREE

Sales of full-fat dairy products, including whole milk, rose significantly in 2015 for the first time in decades. Expect the comeback to accelerate as consumers rebel against processed foods and embrace "good fats" like the ones in milk.

CHANGE IN MILK SALES

AUG. 2014 TO AUG. 2015



THE PRIVATE SECTOR WILL MAKE FUSION A REALITY.

NUCLEAR FUSION HAS LONG TANTALIZED US AS A POTENTIAL ENERGY PANACEA—A CHEAP, CLEAN, AND INEXHAUSTIBLE FUEL SOURCE. WITH BILLIONAIRES INCLUDING JEFF BEZOS, PAUL ALLEN, AND PETER THIEL BACKING PRIVATE-SECTOR PROJECTS, EXPECT A MAJOR STEP TOWARD COMMERCIALLY VIABLE FUSION IN 2016.

HOOKUPS AND BREAKUPS

A NEW-MEDIA JUGGERNAUT WILL ACQUIRE AN OLD-MEDIA BRAND

Time Inc., publisher of *Fortune*, is vacating New York City's Time-Life Building—leaving space for a newcomer. Our odds on these brands becoming tenants:

1 IN 200 VICE

1 IN 10 BuzzFeed

1 IN 25 VOX

Digital-media startups once dreamed of selling to media conglomerates. Today the hottest properties, including Vice Media, BuzzFeed, and Vox Media, are big and valuable enough that they're more likely to have old-media companies, including big publishing houses and TV properties, knocking on their doors. (Indeed, Vice just snagged its own TV network.) Aging brands offer name recognition and prestige, which the new kids, who have thrived by bucking the establishment, may start to value as their prominence rises.

HEALTH CARE'S M&A FLOOD WILL EBB ...

As pharma and biotech stocks swooned this fall, the sector's frenzied wave of mergers and acquisitions took a breather. While a possible Pfizer-Allergan merger would probably push the health care M&A total to new heights, it may be this cycle's last hurrah. The currency fueling much of the dealmaking—the companies' inflated stock valuations—is now depressed, and acquisition targets may decide to hold out for a higher price.

AND PFIZER WILL BREAK UP

Why launch a huge merger, only to split up? Pfizer could do just that. The company has told analysts it's considering splitting its slower-growth "established pharma" business from its more innovative patented-drugs division. Its talks with Allergan fuel the breakup theory, since a merger would let Pfizer beef up the individual units before separating them.

ACTIVISTS WILL GET LESS ACTIVE

Two moves that shareholder activists commonly push for are breakups and share buybacks. Both often involve borrowing, and as bond investors get more credit sensitive, that debt could become too costly. Expect activists to seek changes at bigger companies with more ability to borrow. Likely targets: GE, where activist Nelson Peltz now has a 3% stake; IBM; and General Motors.

THE FOOD-DELIVERY BUBBLE WILL POP

Everybody eats—but we may not eat enough to support the ballooning food-delivery tech category. Consulting firm Rosenheim Advisors counts 88 companies operating in the U.S. that offer meal kits, meal delivery, food e-commerce, online grocery shopping, or online ordering. "In the next 12 to 18 months there will be some reckoning," says founder Brita Rosenheim. One sign of glut: The industry is running out of names. In online ordering alone, there are EAT24, FoodtoEat, EatStreet, and EAT Club, to name a few.

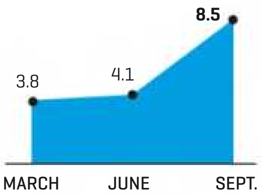
TIME & LIFE BUILDING: FORTUNATA—SPLASH NEWS; LOGOS: COURTESY OF VICE, BUZZFEED, AND VOX MEDIA; GROCERY BAG: BARRY WONG—GETTY IMAGES. GRAPHIC SOURCE: USDA


American Cancer Society®
If we had a dollar for every act of
COURAGE
thrust in the face of cancer, think of the lives we could save.
Donate now
cancer.org

MACRO

THE 2016 *FORTUNE* CRYSTAL BALL

2015 PHISHING ATTEMPT RATE:
FOR EVERY 10,000 EMAILS



CYBERSPIES WILL ATTACK YOUR IN-BOX

By now a foreign intelligence agency has probably collected enough information about you—from social media and via data stolen from big companies and institutions—to target you with a personalized phishing scheme. Think twice before opening that next email attachment.

A BIG COMPUTER SECURITY COMPANY WILL GET HACKED

Fortune wishes no ill upon any company. That said, we think a trusted name in security will be utterly hacked in 2016. Perhaps it'll be a veteran firm like Symantec or an entrenched tech giant with a cybersecurity arm—like Intel, Cisco, or EMC (er, sorry, Dell). In today's world, no organization is sacred—or secure.

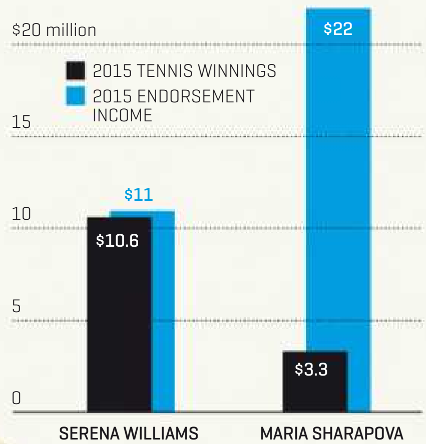
2,235

WHERE THE S&P 500 WILL FINISH IN 2016, ACCORDING TO ANALYST ESTIMATES CROWDSOURCED FOR *FORTUNE* BY RESEARCH FIRM ESTIMIZE. THAT'S UP A MODEST IF NOT INSPIRING 6% FROM TODAY'S LEVELS.

PLAYING FOR MONEY

SERENA WILLIAMS CASHES IN WITH ENDORSEMENT DEALS

Williams cemented her status as one of the greatest athletes of all time by claiming four consecutive major tennis titles from late 2014 through this summer. Although she couldn't pull off the Grand Slam sweep, losing at the U.S. Open, expect her endorsements to approach the level of rival Maria Sharapova's in the coming year—quite an accomplishment for someone who's 34, an age when many tennis stars are past their prime.



THE NHL EXPANDS—TO ANOTHER SNOW-FREE CITY

It's no secret the NHL is looking to expand, capitalizing on a popularity surge that helped its revenue grow from $2.2 billion in 2006 to around $4 billion in the 2013–14 season. This year the league got expansion applications from Las Vegas and Quebec City. Expect the league to approve just one new team, in Sin City, for a record expansion fee of $500 million. The league is likely to add more teams in the West to balance the league's geography. *Nous sommes désolés, nos amis du Québec.*

UNDER ARMOUR WILL SIGN A BIG DEAL WITH RONDA ROUSEY

The undefeated UFC fighter continued to bring new fans to the sport in 2015. Rousey starred in major movies; she graced the covers of magazines; she called out Floyd Mayweather. In sports apparel, meanwhile, no company had a bigger year than Under Armour, which made good on deals with Stephen Curry (who led his Warriors to an NBA title) and Jordan Spieth (PGA Player of the Year). Rousey hasn't yet inked a lucrative apparel sponsorship; a deal would link two rising powerhouses.

WILLIAMS: ALEX GOODLETT—GETTY IMAGES. GRAPHIC SOURCES: SYMANTEC; WTA TOUR INC.

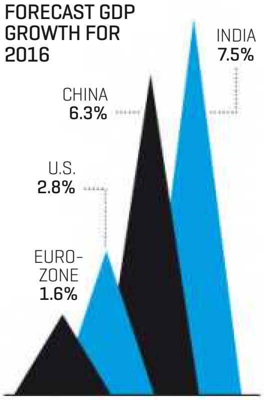
0.5%

THE FEDERAL FUNDS RATE AT THE END OF 2016—UP FROM 0.25% THIS NOVEMBER. EXPECT THE FEDERAL RESERVE TO RAISE RATES ONCE—BUT ONLY ONCE—AS U.S. ECONOMIC GROWTH STAYS STEADY BUT SLOW.

CONSUMERS (AND RATE CUTS) KEEP CHINA GROWING

China has lowered its official GDP growth target to 6.5% for 2016, and actual growth is likely to be lower than that. Expect continued cuts to interest rates and bank reserve ratio requirements as the government scrambles to create a soft landing. But the surprising health of the Chinese consumer will keep forecasts of a crash from coming true. Most notably, Chinese housing values will continue to rise, buoyed by falling inventories in many major cities. The rest of the world will get a chance to adjust to slower but still steady growth in China.

FORECAST GDP GROWTH FOR 2016

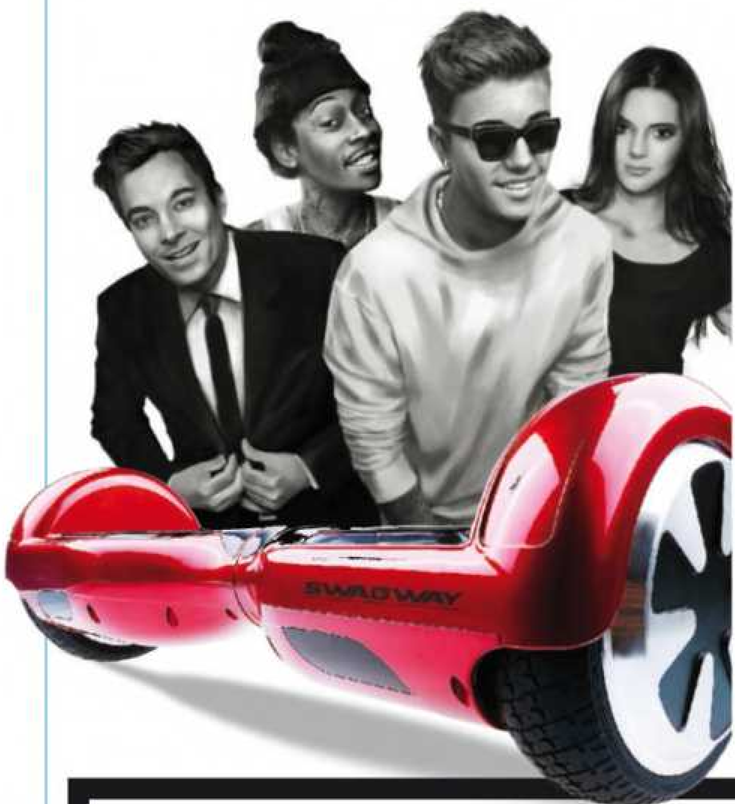


SOURCE: IMF

WARM-WEATHER ATHLETES WILL GET SELF-COOLING CLOTHES

One of the biggest recent advances in the science of clothesmaking has been tech that generates warmth beyond what the fabric alone provides. But what about relief for people who melt in 75-degree-plus weather? So far most "self-cooling" apparel is about wicking away sweat—not an adequate solution for keeping an athlete's body from overheating in the summer. The big apparel makers are busy working on cooling gear, and the first one out of the gate stands to win a strong position in the $34-billion-a-year activewear industry.

'HOVERBOARDS' WILL WOBBLE INTO THE MAINSTREAM



It started the way any bona fide craze should start: with celebrity buy-in. Justin Bieber, Jimmy Fallon, and Kendall Jenner have all ridden them. Rapper Wiz Khalifa liked his so much he refused to dismount when police questioned him at an airport. The technology in question is, of course, the electric "hoverboard" hands-free scooter. Versions of the skateboard-like contraption are now being produced in China—by, among others, Ninebot, the company that bought Segway this year (and is backed by smartphone giant Xiaomi). Expect to ride a hoverboard—or at least dodge one—in the coming months.

SCOOTER: COURTESY OF SWAGWAY; ILLUSTRATION BY ERIC SCOTT PFEIFFER

WHAT WE GOT RIGHT AND WRONG IN 2015

On the money: We correctly forecast that China's growth would slow to 7%. We also called the ongoing boom in China's domestic smartphone industry. We predicted that U.S. wage growth would improve. And we foresaw that the extra income would fuel spending on home improvements. Partial credit: We said Congress would break its gridlock to advance Pacific trade talks; it did, though a final deal still isn't assured. Where we whiffed: We said Amazon would follow the disappointing Fire Phone with a new, better phone; that hasn't happened yet. We predicted falling prices would make solar energy cheaper than fossil fuel in most states; that was overly exuberant. And we forecast a "booming" rebound for oil. (We're still waiting.)

Panama City's growth has been fast, but success has made commutes slow. To alleviate congestion, the Government of Panama made building a mass transit system a priority. Citi, with a history in the country dating back to funding the Panama Canal, worked with government leaders to arrange financing for the Panama Metro project. The end result: Better access to jobs and healthcare services, as well as reduced greenhouse gas emissions.

For over 200 years, Citi's job has been to believe in people and help make their ideas a reality.

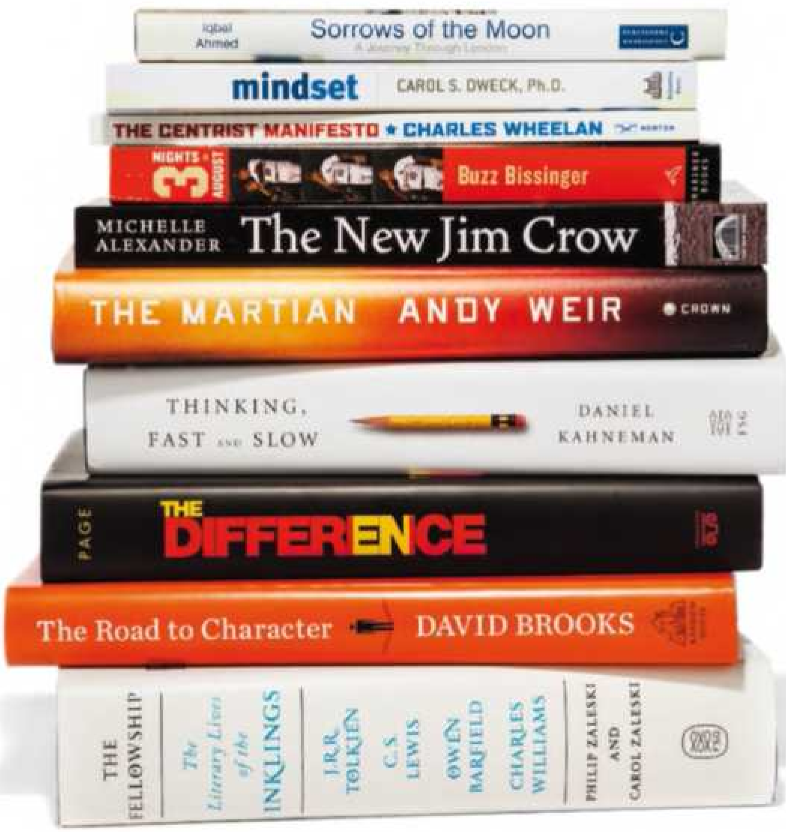
citi.com/progress

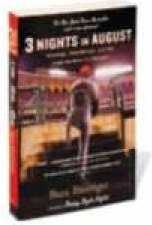
citi®
The World's Citi℠

EXECUTIVE READ

The Books That Changed My Mind

A GOOD BOOK WILL MAKE YOU THINK; a really good book will change the way you do it. *Fortune* asked 10 CEOs, luminaries, and rising stars to name the one book they read this year that altered their perspective on life or business. Here are their picks for the most mind-bending and most useful reads out there today.

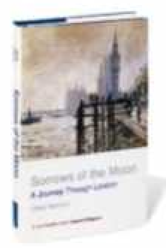




THREE NIGHTS IN AUGUST: STRATEGY, HEARTBREAK, AND JOY INSIDE THE MIND OF A MANAGER
By Buzz Bissinger

REVIEWED BY
SAM YAGAN
CEO, IAC's Match Group

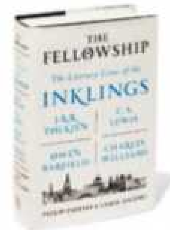
As a CEO, I have often thought about the balance of trusting data vs. gut in decision-making. I claim to be data-oriented, but in the moment, I often rely on my understanding of human nature. As I read about Tony La Russa's maniacal focus on baseball's mass of statistics, coupled with this nuanced understanding of his players and opponents, it was obvious that neither is enough on its own: The leader who truly understands the numbers will make the best gut decisions.



SORROWS OF THE MOON: A JOURNEY THROUGH LONDON
By Iqbal Ahmed

REVIEWED BY
ARNE SORENSON,
CEO, Marriott International

This is not just a beautifully written book; it's an excellent reminder of the amazing depth of people. The author is a concierge in our Regents Park Marriott in London, who collected his observations about immigrant communities in the city, focusing on an individual or two in those communities and how they live, adjust, and stay connected to where they came from. Reading it caused me to pause and listen. I will be forever grateful that I did.



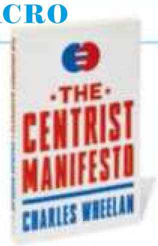
THE FELLOWSHIP: THE LITERARY LIVES OF THE INKLINGS
By Philip Zaleski and Carol Zaleski

REVIEWED BY
GLENN HUBBARD,
Dean of Columbia Business School, former chairman of the Council of Economic Advisers

I have always admired and enjoyed the writings of C.S. Lewis, the brilliant Christian apologist. Lewis's ideas, like his carefully constructed sentences, seem so fully formed from within. But my interest got deeper and broader as I read about his ongoing relationships with other literary giants like J.R.R. Tolkien and Owen Barfield. This story is a reminder that the fount of ideas in a great university is as much about conversations as about one's original thoughts.

PHOTOGRAPHS BY
BRIAN HENN

MACRO



THE CENTRIST MANIFESTO
By Charles Wheelan

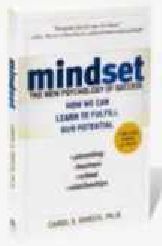
REVIEWED BY
MICHAEL PORTER,
Harvard Business School professor

At this moment in history, I believe politics is the fundamental constraint holding back the U.S. economy and our ability to bridge the many divisions we face. Wheelan helped me understand the root causes of political gridlock and why it has only gotten worse. The book also puts forth a bold new idea for how to change this that can work as soon as 2016.

THE DIFFERENCE: HOW THE POWER OF DIVERSITY CREATES BETTER GROUPS, FIRMS, SCHOOLS, AND SOCIETIES
By Scott E. Page

REVIEWED BY
DR. VIVIAN LEE,
CEO, University of Utah Health Care

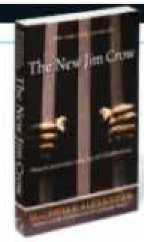
Page uses data to show that a diverse group of individuals often outperforms a narrow group of high-achievers, and he makes a compelling case that if you really want to lead a high-performing team, you have to be willing to accept that sometimes you're wrong—because no matter how good you are, you can't always be right. To be a leader who outperforms, you have to be willing to change your mind.



MINDSET: THE NEW PSYCHOLOGY OF SUCCESS
By Carol S. Dweck

REVIEWED BY
SPENCER RASCOFF,
CEO, Zillow Group

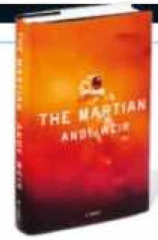
My children's school recommended that we read this book, but its concepts are as applicable to managers as they are to parents. The key takeaway for me was that highly capable people tend to be risk-avoiders, because they're so used to accolades. The book recommends praising effort over accomplishment, which we strive to do at Zillow, encouraging people to take big swings even when it might not work out.



THE NEW JIM CROW: MASS INCARCERATION IN THE AGE OF COLORBLINDNESS
By Michelle Alexander

REVIEWED BY
MARK ZUCKERBERG,
CEO, Facebook

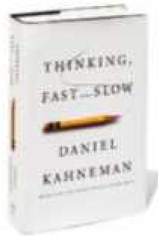
I read *The New Jim Crow*, a study of how the U.S. justice system disproportionately criminalizes and jails blacks and Latinos. Making our criminal justice system fairer and more effective is a huge challenge for our country. I'm going to keep learning about this topic, but some things are already clear: We can't jail our way to a just society, and our current system isn't working *[via Facebook's A Year of Books project]*.



THE MARTIAN
By Andy Weir

REVIEWED BY
CRAIG BARRETT,
Former CEO, Intel

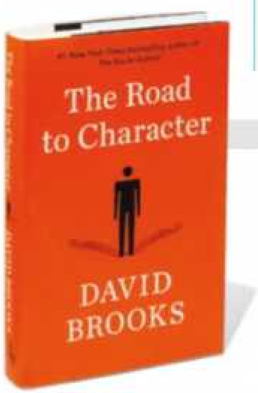
This book reinforced for me that individuals, not large organizations, drive progress. In business, entrepreneurs create transformative companies almost overnight, and in the social sector, high-performing charter schools run circles around the K–12 education system. Expect future advances to follow the same pattern.



THINKING, FAST AND SLOW
By Daniel Kahneman

REVIEWED BY
JOHN LILLY,
Investment partner, Greylock Partners

This book is amazing—it didn't change my mind so much as it has changed the way I think. It explains the fundamental difference between the way our brains make quick decisions vs. considered ones. Understanding which you're doing at any given time can have a profound impact on what you ultimately decide.



THE ROAD TO CHARACTER
By David Brooks

REVIEWED BY
INDRA NOOYI,
CEO, PepsiCo

Beyond provoking valuable self-reflection and introspection, it sparked a wonderful discussion with my two daughters about why building inner character is just as important as building a career. In fact, the two go hand in hand—the moral compass of our lives must also be the moral compass of our livelihoods.

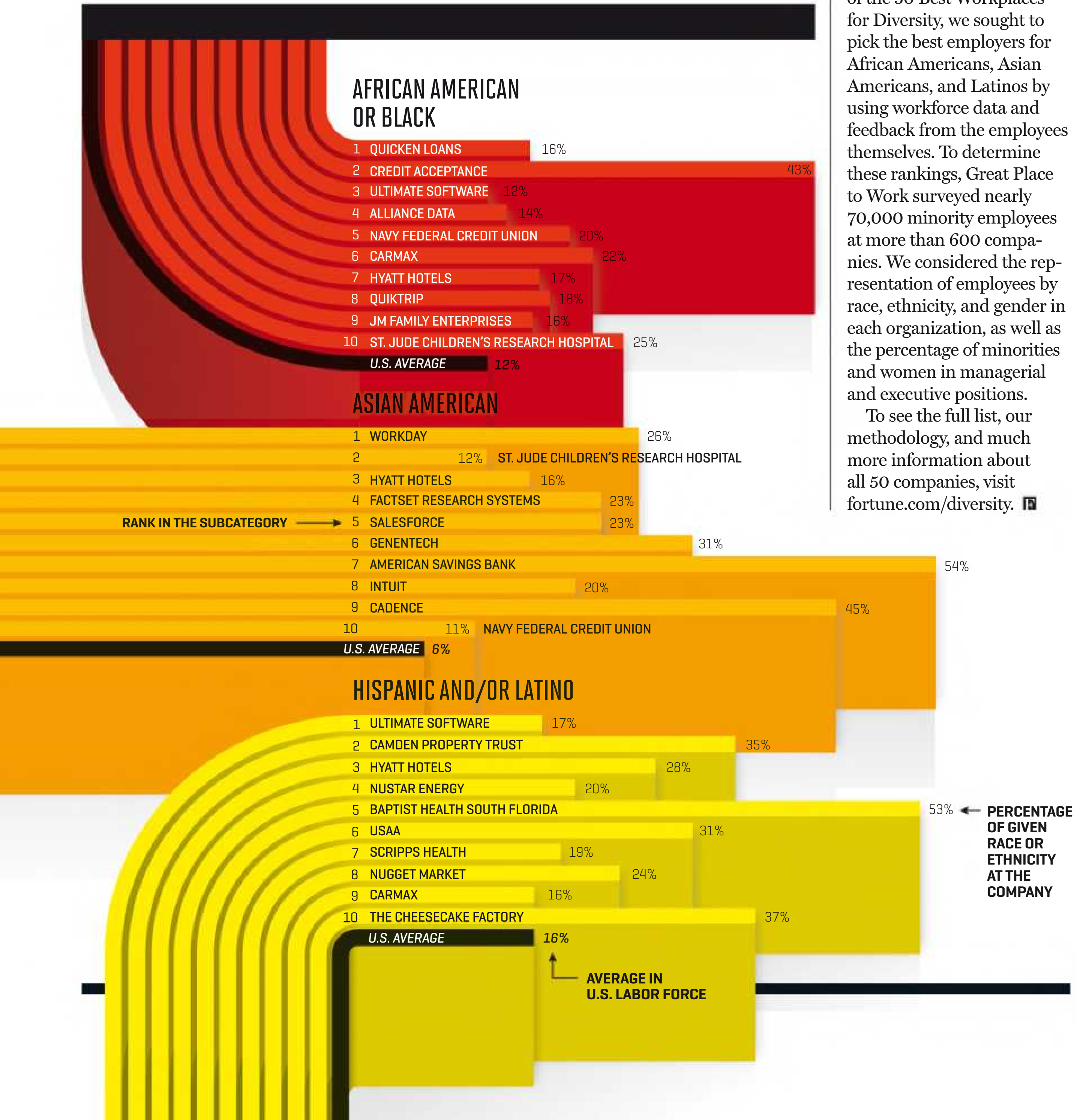
NOOYI: JENNIFER POTTHEISER—NBAE/GETTY IMAGES

BEST WORKPLACES FOR DIVERSITY

Which employers are creating cultures of inclusiveness? Below, some leaders to follow.
By Christopher Tkaczyk

FOR THE FIRST TIME *Fortune* and Great Place to Work have partnered with *Essence* and *People en Español* to find the companies that have made diversity a top priority. In addition to our overall list of the 50 Best Workplaces for Diversity, we sought to pick the best employers for African Americans, Asian Americans, and Latinos by using workforce data and feedback from the employees themselves. To determine these rankings, Great Place to Work surveyed nearly 70,000 minority employees at more than 600 companies. We considered the representation of employees by race, ethnicity, and gender in each organization, as well as the percentage of minorities and women in managerial and executive positions.

To see the full list, our methodology, and much more information about all 50 companies, visit fortune.com/diversity.



GRAPHIC SOURCES: THE COMPANIES; BUREAU OF LABOR STATISTICS

CYBERSECURITY

Should the Feds See Your Private Data?

THE TECH INDUSTRY IS DIVIDED OVER A NEW DATA-SHARING BILL DESIGNED TO DETER CYBERATTACKS. WILL IT HELP OR HURT PRIVACY? DEPENDS ON WHOM YOU ASK.

By Robert Hackett

AT THE END OF OCTOBER the U.S. Senate broke its characteristic state of logjam and passed by a wide margin the Cybersecurity Information Sharing Act. The bill encourages companies and federal agencies to exchange data related to computer threats (of which there are many these days) and formalizes the framework for how the two sides should interact. It's the first piece of significant cybersecurity legislation to clear the chamber in years, though lawmakers have been attempting to pass a bill like it since at least 2012.

CISA, as it's known, received rare bipartisan support: 74 in favor, 21 opposed. All it took to convince legislators that the public and private sectors should work together was a series of devastatingly ugly and often embarrassing cyberattacks that walloped health insurers, a movie studio, the government's own HR department, and untold others. The enemy of one's enemy is an ally—kudos, team.

Not everyone backs the pending law. Privacy advocates and several tech companies, such as Apple, Twitter, and Salesforce, condemn the bill. Banks and telecom giants, including AT&T, Verizon, and Comcast, endorse it. Google and Microsoft remain silent, even as an industry group to which they belong disapproves of the bill in its current form.

Chalk up the schism to post-Snowden skepticism. Documents leaked by National Security Agency whistleblower Edward Snowden in 2013 revealed an uncomfortable level of cooperation between the NSA and U.S. tech companies. The revelations cast a long shadow on the industry, creating tension between Silicon Valley and Capitol Hill.

The bill's critics say it won't deter data breaches and will instead allow companies to quietly share people's private information with the government sans liability. "Sharing is already a common practice," and more laws aren't necessary, says David Levine, a professor at Elon University who drafted a letter decrying the legislation. The proposed law, which includes a Freedom of Information Act exemption, will create a situation ripe for abuse, he says. "Here we have the collection of information from the public while simultaneously denying the public the opportunity to assure that the government is using the information the way it said it would."

Proponents counter that the program is voluntary and asks companies to anonymize or omit private user information wherever possible. "If CISA means more comprehensive visibility into where bad actors are coming from and what they're doing, that is pro-privacy," says Rajesh De, a partner at the law firm Mayer Brown and former general counsel at the NSA.

Before CISA lands on the desk of President Obama, who most believe will sign the bill into law, it must first pass in the House of Representatives. There, legislators will make tweaks and merge the bill with similar legislation the House approved earlier. The true impact of CISA remains to be seen. But for once no one can say that Congress didn't do anything.

ILLUSTRATION BY L-DOPA

1A

1B

2

3

6

5

4

FORTUNE GLOBAL FORUM

WHERE DISRUPTERS MEET ARISTOCRATS

Common ground at a *Fortune* summit in San Francisco. ***By Geoff Colvin***

IF YOU BRING TOGETHER founders of the digital companies that are reshaping the world economy and the corporate aristocracy that has dominated commerce for decades, will they have anything to talk about? Turns out they're ravenous to learn from one another, as we discovered at the recent *Fortune* Global Forum in San Francisco. The established companies must learn to be revolutionary, and the successful disrupters must learn how to keep winning for the long haul. Leaders of the corporate old guard included J.P. Morgan Chase's Jamie Dimon, Siemens's Joe Kaeser, IBM's Ginni Rometty, Wells Fargo's John Stumpf, and many others. Among the Silicon Valley stars were Alphabet CEO Larry Page, venture capitalist Marc Andreessen, Airbnb CEO Brian Chesky, and Yahoo chief Marissa Mayer. One powerful lesson that emerged is that even in the age of digital disruption, human capital is the most critical asset—and the most difficult to manage well—for all the leaders. The forum's agenda is at FortuneConferences.com, and you can watch sessions at the *Fortune* magazine YouTube channel.

1A BEST ADVICE ABOUT DISRUPTION

"Fifty percent of our business has changed in the last 10 years. The key to surviving is having an ownership culture... You have to get to people's pride."

Joe Kaeser, CEO, Siemens

1B "Only a baby with a wet diaper likes change. Everyone else resists change."

Mike Ullman, executive chairman, J.C. Penney

2 BEST DEMYSTIFICATION OF A CEO'S ROLE

"Good executives confuse themselves when they convince themselves that they *do* things... Set a vision, listen to the team, and then get out of the way."

Marissa Mayer, CEO of Yahoo, on why listening to employees is her most important job

3 BEST PEP TALK

"Don't be so damned depressed. We have all become risk experts and are afraid of our own shadow at this point. Move on. The world is going to be fine."

Jamie Dimon, CEO of J.P. Morgan Chase, arguing that CEOs remain too cautious in the wake of the financial crisis

4 BEST DESCRIPTION OF STARTUP CULTURE

"Burn the ships on the beach! Having to succeed is a great motivator vs. not wanting to fail."

Geoff Yang, partner at Redpoint Ventures, on why startups have an edge over larger companies

5 BEST DEFENSE

"We're incredibly confident in the data that we've submitted to the [FDA]."

Elizabeth Holmes, founder and CEO of Theranos, responding to mounting criticism of her company's blood-testing technology

6 BEST CALL TO ARMS

"We've got to be more ambitious. We've got to do things that matter more to people. We've got to do fewer things that are zero-sum games, more things that really cause a lot of benefit."

Alphabet CEO Larry Page, on how a company's sense of purpose can improve employee morale

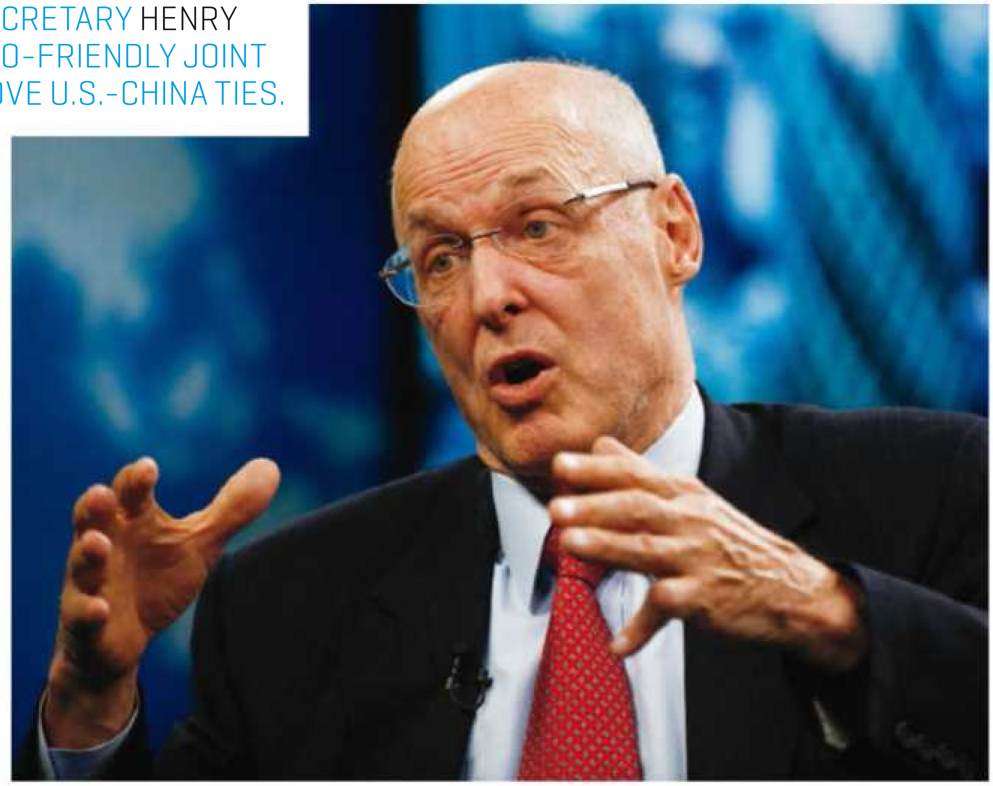
STUART ISETT—FORTUNE GLOBAL FORUM

GLOBAL POWER PROFILE

A China Hand's Green Plan

FORMER TREASURY SECRETARY HENRY PAULSON BELIEVES ECO-FRIENDLY JOINT VENTURES WILL IMPROVE U.S.-CHINA TIES.

By Scott Cendrowski



SIMON DAWSON—GETTY IMAGES

Paulson's antipollution motto: "The cleanest energy is the energy you don't use."

ON THE OUTSKIRTS of Beijing, one of the biggest housing projects in the world is taking shape. Two hundred acres of apartments are being tailored for low-income residents priced out of the center of the 22-million-person capital city, with construction slated for completion next year. The $1 billion project, BeiAnHe ("North Peaceful River"), may become a model for the rest of China, where some 300 million people will move from the countryside to cities during the next two decades. But it's also a proving ground for Hank Paulson and his efforts to improve relations between the U.S. and China.

The Paulson Institute, a nonprofit founded in 2011 by the former Treasury secretary and Goldman Sachs chief executive, has connected American and Chinese businesses to work toward a common goal: improving energy efficiency in China. Last year at the institute's inaugural U.S.-China CEO Council for Sustainable Urbanization, which brought 16 CEOs to Beijing, Dow Chemical and the China State Construction Engineering Corp. (CSCEC) forged a relationship through which Dow is helping make BeiAnHe a "green" project. And Paulson expects such partnerships to snowball. "Business has been the ballast" of U.S.-China relations, he tells *Fortune*. When diplomacy is tense, he says, he wants his CEO council to both pursue sustainability and "deepen the relationship."

Paulson's optimism faces a test these days, as tensions between the two countries are the highest they've been in years. Cyberespionage has soured business relations: U.S. officials say China's government has backed commercial hacking programs that target the intellectual property of U.S. industrial companies, an assertion China denies. And political conflict has flared in the South China Sea, where China has built islands on top of reefs in order to make territorial claims on surrounding waters. In late October the U.S. Navy sent a destroyer within 12 nautical miles of the "islands," a move that China's Foreign Ministry called "provocative."

Still, Paulson is better positioned than most Americans—certainly those clamoring after their parties' presidential nominations—to


ENJOY A BETTER VIEW OF RISKS ACROSS YOUR BUSINESS.
With the right vantage point, you can have a better view of the risks that could affect the business you love. Zurich's risk profiling is a structured approach that helps identify, prioritize and mitigate risk. We can help you manage your risk rather than just insure against it, so you can focus more on profit and less on risk.
VIEW OUR RISK PROFILING VIDEO AT zurichna.com/rp
ZURICH INSURANCE.
FOR THOSE WHO TRULY LOVE THEIR BUSINESS.
ZURICH®

calm the waters. The former cabinet member (anyone who addresses him as Secretary Paulson is quickly corrected—"It's just Hank") has longtime relationships with leaders and officials in China, having helped Goldman Sachs grow in the country in the 1990s and then having led the Treasury Department from 2006 to 2009. Among his noteworthy collaborators from the Goldman days: Wang Qishan, then head of a state-owned Chinese bank and now a member of the Politburo Standing Committee that rules China.

Lately, Paulson has brought executives together under the umbrella of combating pollution—an area where China faces huge challenges because of its heavy reliance on coal. His organization has focused on energy-efficient buildings because the fixes are usually easy but also environmentally crucial. About 40% of global greenhouse-gas emissions come from buildings, the Paulson Institute says, and as much as 50% of the world's new buildings are going up in China. "The cheapest and cleanest energy is the energy you don't use," Paulson says.

China officially approves a high number of plans for green residential and commercial buildings, but builders seldom follow through because of lax enforcement. And Western manufacturers like Dow have better energy-efficiency technology than their Chinese counterparts. If they collaborate, Paulson reasons, U.S. companies will get better access to projects across China, while Chinese builders can get the innovative materials they need to meet strict government energy mandates.

The outsize Beijing housing project will test his approach. State-owned CSCEC is the largest builder in the world—with 7,000 projects spanning Africa, the Middle East, and China's interior. Last year at Paulson's council, the builder's then-chairman, Yi Jun, joined Dow CEO Andrew Liveris in a small group discussion about building efficiency. Out of the session came an understanding between the two companies, and Dow now plans to sell CSCEC special paints and polymers for the project. The energy-efficient materials aren't cheap—in fact, Chinese companies on Paulson's council worried about the cost. So Paulson's staff is now working with Chinese officials to create a fund through which U.S. and Chinese investors could subsidize energy-efficiency products sold by U.S. companies. (Details on that fund should be worked out in the next six months.)

Cooperating on technical projects in China can be a sore subject for U.S. executives, given problems over the years with China's inconsistent protection of foreign companies' intellectual property rights. But American members of Paulson's CEO council say they see progress on that front. "Because [Chinese companies] are becoming more innovative themselves, you see improvements in IP protection," says David Cote, CEO of manufacturing giant Honeywell, whose second-largest market after the U.S. is China.

Paulson's latest CEO roundtable took place in October, at Beijing's Diaoyutai State Guesthouse, a preserve of lakes and flowers reserved for visiting dignitaries and VIPs. IBM CEO Ginni Rometty urged collaboration on technology to solve energy and environmental challenges, while Paulson called for an elimination of tariffs on environmental goods and services, calling such levies "immoral."

Paulson says that even incremental environmental changes have outsize effects in China, whose economy contributes one-eighth of the world's GDP but uses one-fourth of the world's energy output. He's betting that the same idea—small changes, big impact—will apply to the business partnerships he's forging. The U.S.-China relationship is "under stress for a variety of reasons," Paulson says. "But there are many more common interests than differences." ■

High-rises under construction, cloaked in heavy smog in Beijing. About 40% of global greenhouse-gas emissions come from buildings.

IMAGINECHINA

CHINA'S CHALLENGE, BY THE NUMBERS

$250 billion
ESTIMATED ANNUAL COST OF POLLUTION IN CHINA

25%
AMOUNT BY WHICH THE BEIJING REGION MUST REDUCE ITS SMALL-PARTICULATE-MATTER AIR CONCENTRATION BY 2017, PER GOVERNMENT MANDATES

221
CHINESE CITIES EXPECTED TO HAVE A POPULATION OF 1 MILLION OR MORE BY 2025

Power your enterprise with our most powerful processor
Your office never really closes. Your team needs technology that keeps them productive. This is the Samsung Galaxy S6 edge. Equipped with 3x more RAM than the iPhone 6* and our most powerful mobile processor ever, we have created a superior platform to keep you working as fast as business demands.
Visit samsung.com/us/galaxys6business to learn more
SAMSUNG
12:45 AM
Phone
Salesforce
KNOX
Office Mobile
Apps
SAMSUNG
Galaxy S6 edge
Ready For The Next Big Thing
SAMSUNG BUSINESS
*Based on comparison of Galaxy S6 and Galaxy S6 edge RAM with Apple's published specifications. Connection methods may vary depending on the type of connected devices or the shared content. Devices that support Quick Connect™ must have it enabled; devices that do not support Quick Connect™ must have Wi-Fi direct or Bluetooth enabled. © 2015 Samsung Electronics America, Inc. Samsung, Galaxy S, Knox and Samsung Business are all trademarks of Samsung Electronics Co., Ltd. Android and other marks are trademarks of Google Inc. Other company names, product names and marks mentioned herein are the property of their respective owners and may be trademarks or registered trademarks. Appearance of devices may vary. Screen images simulated. Printed in U.S.A.

GOLF'S STARTUP STARS

YOUTH IS BEING SERVED ON THE PGA TOUR. IS IT GOOD FOR BUSINESS?

EVERY PGA TOUR SEASON is the proverbial snowflake, unique in its own way. Even so, the 2014-2015 version was truly special and different—a blizzard of youthful success. Watching the golf year unfold, it was hard not to surmise that a new era had arrived. A pressing question lingered: Would this make the TOUR's competitive landscape even more attractive to fans and sponsors alike, or would they pine for the good old days?

By the time the season concluded at Atlanta's venerable East Lake Golf Club at the TOUR Championship by Coca-Cola, 14 twenty-somethings had collectively won 24 tournaments. This represented the largest trophy haul for the under-30 set since the PGA TOUR as we know it was formed nearly 50 years ago (about two decades before any of these peach-fuzzed players were even born). Fitting, then, that the year-end event went to Jordan Spieth, who wasn't just the breakout golf star of the year but world sport's newest superstar, too.

The TOUR Championship capped a remarkable season for the 22-year-old Texan, with his

first two major victories—the Masters and the U.S. Open—among his five wins. This final triumph in Atlanta also crowned him champion of the FedExCup, with its $10 million prize bonus. Spieth's $22 million–plus haul for the season set a new record for annual prize money. (Less noteworthy to his accountant but equally historic, Spieth, mature beyond his years, also became the youngest player to win five times in one season on TOUR since 1929.)

Despite wondrous, sustained excellence that saw Spieth a mere handful of shots from a calendar-year Grand Slam, his status as PGA TOUR Player of the Year wasn't settled until that concluding event, thanks largely to the late-season heroics of Jason Day, then 27. The hugely talented and personable Australian found encouragement rather than heartbreak in close calls both at the U.S. Open and the British Open. These provided fuel for a remarkable late-July to mid-September tear that included Day's first major win, the PGA Championship at Wisconsin's Whistling Straits, where he held off (who else?) Spieth, as well as three more wins to bookend an early-season victory at the Farmers Insurance Open in San Diego.

The surge put Day atop the World Golf Rankings, supplanting Spieth, who soon recaptured the mantle and who himself had supplanted Rory McIlroy, still only 26 but with four majors already to his name. McIlroy's year, while blighted by an ankle injury and some patchy play, nonetheless included a May victory at the World Golf Championships–Match Play in San Francisco and, two weeks later, a seven-shot romp at the Wells Fargo Championship. These wins reminded all that McIlroy's best golf is among the best the game has even seen.

Golf's new "Big Three" will be looking over their collective shoulder this coming season to track the continued progress of Rickie Fowler, who aims to turn that nominal grouping into a foursome. The hugely popular Californian, 27 this month, silenced critics who questioned his ability to close out tournaments with a stirring victory over golf's deepest field at THE PLAYERS Championship at TPC Sawgrass. There, creating riveting theater on one of golf's most exacting courses, Fowler played the final six holes in six under par to force a playoff; he triumphed at the iconic island-green 17th, where Fowler made his third birdie on the hole *that day.* A FedExCup Playoffs victory at the Deutsche Bank Championship in Boston only underlined the point: Rickie is for real, and a real threat to reach golf's summit in 2016.

It is doubtless good news for the PGA TOUR that McIlroy, Spieth, Day, and Fowler have become familiar names to even casual sports fans. That said, the past season also demonstrated that the twenty-something set has strength in numbers. The year's other triumphant young guns are well worth mentioning, because there is plenty of potential star power here—and geographic diversity. They include: South Korea's Sangmoon Bae, Ben Martin, Canada's Nick Taylor, Robert Streb, Patrick Reed, Brooks Koepka, Sweden's David Lingmerth, Troy Merritt, Ireland's Shane Lowry, and New Zealand's Danny Lee. And, while he didn't win a PGA TOUR event, consistently strong play catapulted the long-hitting, freewheeling Daniel Berger to PGA TOUR Rookie of the Year at just 22 years old, highlighted by a closing T12-2-T12 run in the FedExCup Playoffs.

IT'S ALL ENOUGH TO MAKE ONE SUSPECT THAT GOLF IS BECOMING THE NEW SNOWBOARDING, A SPORT BEST SUITED TO THE YOUNG AND FEARLESS.

It's all enough to make one suspect that golf is becoming the new snowboarding, a sport best suited to the young and fearless. Maybe so, but there were also enough success stories among the older crowd to remind everyone that experience still counts plenty and that the game can be played at the highest level longer than any other. Most surprising, perhaps, was the victory by Davis Love III, 51, at the Wyndham Championship in August, the former and current U.S. Ryder Cup captain's first win on TOUR since 2007. A close second would be three-time major champion Padraig Harrington of Ireland breaking his seven-year TOUR winless drought at The Honda Classic. Jim Furyk, now 45, almost always seems to put himself near the top of the leaderboard, yet his triumph at the RBC Heritage in Canada was his first in five seasons.

In golf as in business, persistence pays.

And while the two greatest superstars of their generation, Tiger Woods, who turns 40 later this month, and Phil Mickelson, 45, struggled with their form—and, in Woods's case, with injuries—some of their old thirty-something rivals made plain to the kids that the world golfing stage remained theirs, too. Zach Johnson, 39, ended Spieth's Grand Slam hopes at the home of golf, Scotland's Old Course at St. Andrews, taking home his second major title and likely cementing his eventual Hall of Fame status. Dustin Johnson, 31, captured a PGA TOUR title (World Golf Championships–Cadillac Championship) for the eighth straight year and had 11 Top-10 finishes in 21 tournaments, reminding everyone that he remains among golf's biggest talents. The same can be said of two-time Masters champion Bubba Watson, 37, who won the World Golf Championships–HSBC Champions in China as well as the Travelers Championship for the second time en route to perhaps his most consistent season yet on TOUR. Watson ended the campaign as World No. 4, sandwiched between Spieth (No. 1), Day (2), McIlroy (3), and Fowler (5). The late-blooming Jimmy Walker, 36, also recorded a second-straight multi-win season, with victories at the Sony Open in Hawaii and the Valero Texas Open in his home state.

EARLY RETURNS FOR THE 2015-2016 SEASON SUGGEST THAT THE UNDER-30 CROWD HAS NO PLANS TO DEFER TO THEIR ELDERS.

Nonetheless, early returns for the nascent 2015-2016 season suggest that the under-30 crowd has no plans to defer to their elders. The opening tournament, the Frys.com Open, went to Argentina's Emiliano Grillo, 23, playing in his first start as a PGA TOUR member, just weeks after capturing the TOUR Championship on the Web.com Tour and earning his TOUR card. Another 23-year-old rookie, Smylie Kaufman, captured the season's second event, the Shriners Hospitals for Children Open in Las Vegas, followed by 22-year-old Justin Thomas capturing the CIMB Classic in Malaysia for his first TOUR title, too. So much for a learning curve. Kids nowadays...

BUT IS IT GOOD FOR BUSINESS?

The rise of these golfing whippersnappers is no doubt remarkable, but will it be good for the PGA TOUR's bottom line? Will millennials sell to the game's core Boomer and Gen X crowd while attracting the newbies? On current evidence, the answer appears to be a resounding yes. This is especially true as it pertains to fan consumption.

The 2014-2015 season saw an approximately 22 percent spike in overall broadcast viewing hours over the previous season, with an equal rise in overall TV ratings. PGATOUR.COM story content saw more than 10 million more page views from 3 million additional unique visitors season over season; page views from social media more than doubled. Its OTT subscription product, PGA TOUR LIVE, developed as part of

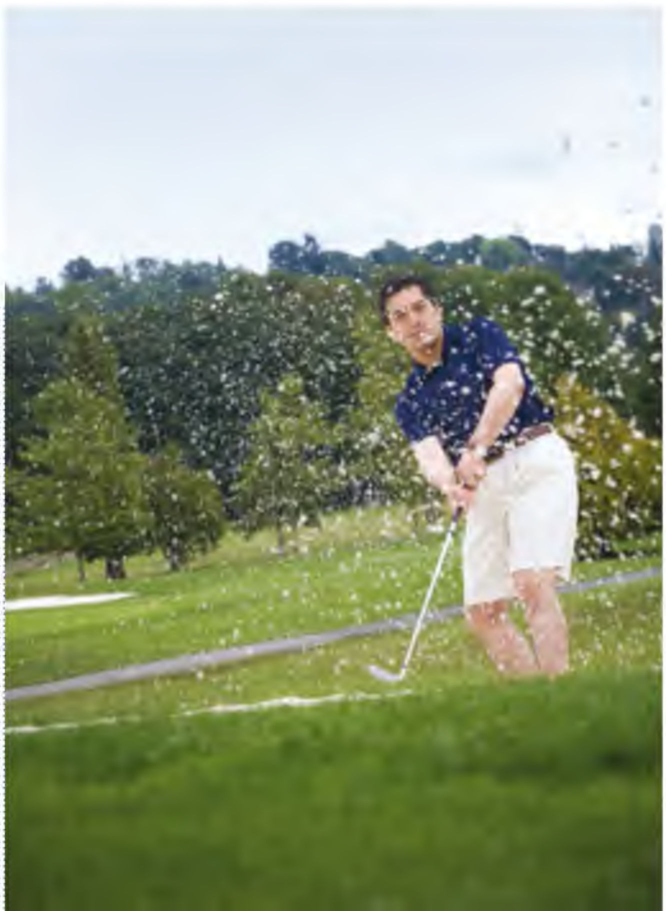

YOU KNOW IT.
WE KNOW IT.
EXPERTISE MATTERS.
Becoming a leader doesn't happen by chance. Like you, we built our success on years of insight and refinement – so you can count on the best travel experience anywhere in the world.
To learn more, visit netjets.com/knowit or call 877-JET-2809
NETJETS
NetJets is a Berkshire Hathaway company. Aircraft are managed and operated by NetJets Aviation, Inc. NetJets is a registered service mark. ©2015 NetJets IP, LLC. All rights reserved.

a new partnership with MLBAM, debuted this past summer, introducing live access to Thursday and Friday rounds. In the seven tournaments it covered post-launch, PGA TOUR LIVE was downloaded more than 300,000 times, with fans watching 2.6 million video streams.

Whether or not the PGA TOUR foresaw the season's youthful dominance, it appears to have prepared itself well for more younger, more media-savvy fans. The TOUR procured 2 million new followers across all of its social media channels, greatly expanding its reach on the strength of experimentation on new platforms such as Snapchat and fan-engagement initiatives such as the tournament on-site Twitter Vending Machine (which lets fans "pay" with a tweet and activate the machine for a free prize) and fan voting on player uniforms for the biennial Presidents Cup team competition. The season saw the TOUR increase its total fans by 50 percent on Twitter, Facebook, and Instagram, and its total engagements by 205 percent. (Indeed, without a single Kardashian as a member, the PGA TOUR has reached nearly 1 million Twitter followers.) On Instagram, the fastest-growing social media channel among young audiences, the TOUR's followers have increased by 226 percent since the same time last season, while also rising by more than 200 percent season over season both in terms of engagements per post and total engagements. Looking at millennials specifically, its percentage engaging with PGA TOUR digital platforms increased from 15 percent to 19 percent over the prior year.

Tournament sponsors have voted with their checkbooks. In 2015, the PGA TOUR signed Dell as the new sponsor of the World Golf Championships–Dell Match Play, with the tournament moving to the company's corporate home in Austin, Texas, in a four-year deal. CareerBuilder signed on for six years as title sponsor of what was formerly the Bob Hope Classic. On the renewals front, both Wyndham and Sanderson Farms re-signed for full 10-year sponsorships. And John Deere inked a seven-year contract for its eponymous Classic, while FedEx extended its St. Jude Classic deal through 2017. While not title sponsors on the PGA TOUR, Charles Schwab & Co. signed a 20-year marketing extension and Rolex renewed its multifaceted sponsorship deal for 11 years.

All this builds on momentum from the prior year, which saw new title sponsors in Quicken Loans and Barracuda Networks; a new Alabama event sponsored by Barbasol; and 10-year renewals by Travelers and Waste Management as well as five-year renewals by BMW, McGladrey, and Wells Fargo. In recent times, the PGA TOUR has proven itself quite adept at navigating economic upturns and downturns, coming out stronger at most every turn. With its new generation of stars providing the tailwind, the TOUR looks well poised to continue that trend. ● —Evan Rothman




CROWNE PLAZA
HOTELS & RESORTS
Business travel isn't just about business. Neither are we.
At Crowne Plaza® Hotels & Resorts, we're changing the way business travels by creating new experiences for your work, and after-work. From free Wi-Fi and secure wireless printing to fitness centers and Wellness Stations, you can work and relax the way that works for you.
Book online at crowneplaza.com.
©2015 IHG. All rights reserved. Most hotels are independently owned and operated.


ordinary progressive lens
Simulation
VARILUX® progressive lens

Venture

ELECTRIFY YOUR MIND

A new generation of "brain training" devices promises to improve your focus and much more. But so far the gadgets are advancing faster than the evidence in their favor.

By Jennifer Alsever

IF THERE WERE a system or a product that could make you, say, 10% smarter, you'd buy it in a second, right? That's been the promise of the "brain training" field, which has grown to a $1.3 billion market through products like Lumosity, a series of online word games and mind twisters that has amassed 70 million users. And that's just one of many options. There's "neuroleadership" coaching, $15,000 intensive brain-training retreats, even coffee shops promising cognitive-enhancing joe.

Now, faster than the current coursing through your cerebellum, the field is burgeoning into what could be called Brain Training 2.0. The new generation consists of devices that promise to monitor or stimulate your brain to make you calmer, more focused—perhaps even smarter. Priced from $79 to $595, these wearable gadgets—with names like Melon, Emotiv Insight, Melomind, iFocusBand, and Narbis—

ILLUSTRATION BY BEN FEARNLEY

aim to gauge your cerebral activity using electroencephalography (EEG) and then redirect your focus. Other companies, such as Thync, Fisher Wallace Laboratories, and Halo Neuroscience, use mild electric pulses that purportedly activate certain connections in your brain. Some—such as Halo, backed by Andreessen Horowitz, and Thync, whose lead investor is Khosla Ventures—even have the blessing of top venture capitalists.

The brain fitness market is expected to grow to $6 billion by 2020, according to SharpBrains, which tracks neuroscience trends. This could be the start of on-demand cerebral boosters, says Amy Webb, who forecasts such trends as the founder of Webbmedia Group Digital Strategy. “Just as you might adjust the temperature of your living room with your mobile device before you get home,” she says, “you will adjust your mood so you are relaxed yourself when you walk in the room.”

That’s the hope, in any case. For now, it’s safe to say, the devices are advancing faster than the research. “It’s a little bit of the Wild West right now,” says Rex Jung, a neuropsychologist and an assistant professor of neurosurgery at the University of New Mexico. “The science just isn’t there to warrant efficacy.”

The good news is that the field is expanding because new technology has vastly improved our understanding of how the brain works and EEG equipment is growing less cumbersome and much cheaper. Much of the excitement centers on neuroplasticity, the brain’s ability to reorganize itself by forming new connections between cells, and neurogenesis, its ability to create new neurons long into life.

The upshot: It’s never too late to change your brain. “People are going to pay more attention to brain health in ways they never did before,” says Scott Halford, CEO of a consultancy called Complete Intelligence, which teaches executives to optimize their thinking based on neuroscientific research. He’s also the author of *Activate Your Brain: How Understanding Your Brain Can Improve Your Work—and Your Life.*

Above right, the Melomind; at right, the Muse headband. The Thync module (at bottom, in white) attaches to your temple, with the black part on your ear or neck.

Top experts express reservations about today’s technology—but a belief that the field is real and heading in promising directions. The EEG devices are similar to biofeedback devices and can be helpful, says Alexander Bystritsky, a psychiatrist who leads UCLA’s deep-brain stimulation program. “They’re a little bit like vitamins,” he says.

He also sees benefits to the other category, wearables that apply electrical impulses to the brain. Many of these use something called transcranial direct current stimulation. Bystritsky says research establishes that superficial electrical stimulation causes minimal side effects, and some studies have shown it can be an effective treatment for depression and anxiety. The FDA has approved a handful of such devices to treat mental illnesses, and neuroscientists have explored whether they could help in everything from learning math to stroke recovery. At one point the Defense Advanced Research Projects Agency tested whether it could put military snipers into a flow state for improved accuracy.

Yet no one yet understands exactly how and why (or why not) the devices work, where to apply currents, and what kind of strength to use. So says Daofen Chen, a clinical neurophysiologist and program director at the National Institute of Neurological Disorders and Stroke (NIND). “The bottom line is that we don’t know how the brain works,” he says. “We don’t know the principal of how the current is moving around in the pathways.”

The research has given rise to do-it-yourself kits, sold for $39.95 to $189 online. YouTube videos even demonstrate how to make stimulators using nine-volt batteries. (We’ll let you make your own judgment on the wisdom of assembling your own device and using it to apply voltage to your skull.)

Entrepreneurs are placing bets on more sophisticated versions, both to treat serious brain disorders and to optimize more normal cerebrums. A company called Neuroelectrics has generated $2 million in sales in Europe of a swim-cap-like device that uses electrodes to treat patients with neuropathic pain or strokes. Neuroelectrics is now conducting clinical trials in two Boston

MELOMIND: COURTESY OF MELOMIND; MUSE: COURTESY OF MUSE; THYNC: COURTESY OF THYNC

hospitals. Meanwhile, Halo is building wearable devices that aim to improve memory and cognitive performance, as well as treat neurological and psychiatric disorders like stroke, depression, and even Alzheimer's disease. Halo's co-founder and CEO, Daniel Chao, compares today's brain treatments with the Model T era in the auto industry. "We haven't even scratched the surface," he says. Chao and co-founder Brett Wingeier bring credibility to Halo: Their previous business, NeuroPace, developed an FDA-approved implantable brain stimulator for epilepsy.

Halo's new device, Chao says, has been tested in double-blind, controlled experiments with 1,000 people to determine efficacy and safety. He says Halo is working with researchers on clinical trials to treat various brain disorders. "Of course, there will be questions about how well it works and whether it's safe," he says.

Isy Goldwasser, CEO of Thync, says it has spent years studying its device's efficacy and safety, including MRIs and EEGs on more than 4,000 people. (The device does not use transcranial stimulation.) That includes a recent study finding that people who used the device reported lower tension and anxiety compared with those using the device equivalent of a placebo.

His product certainly has fans (though my experience was less inspiring; see sidebar). Boston hairdresser John Clark, 69, says he has been using the device five or six times a week since August. "Once I got my range, it works out beautifully," says Clark, who adds that it has helped his depression and insomnia. Goldwasser says Thync has sold "millions of dollars" in devices in the four months since their release.

The overall picture is still murky, and the evidence inconclusive. "There are ethical debates in the literature and in public discussions about the clinical readiness of the brain-stimulation devices and when and how they should be used," says Chen of NIND. For now consumers will be using the earliest iterations of the technology, which will likely improve over time. But it's not always ideal to be an early adopter. "People should know there is a risk," Chen says. "And in a way they are research participants." ■

I TRIED TO THYNC DIFFERENT

What happened when the author tested an electrical brain device?

THERE'S NOTHING like firsthand experience, so I decided to try the Thync module, a $299 device that has been on the market for four months. It targets a branch of the trigeminal nerve, according to Thync, to trigger the sympathetic and parasympathetic nervous systems. The FDA has exempted the module from regulation, finding that it is not a medical device. (That seems like the gadget equivalent of nutritional supplements: It's nice not to be hampered by government drug rules, but many consumers don't trust supplements precisely because they're not regulated.)

The module uses adhesives that attach to your temple and send "vibes," or low-energy waveforms, to signal neural pathways. The idea: help you unwind or, conversely, boost energy. Thync describes the gizmo's range of effects as somewhere between that of a glass of wine and a shot of espresso. (The use of "vibes" seems an unfortunate choice of terms, conjuring, as it does, a 1970s surfer rather than a medical treatment.)

The module arrived in sleek black packaging with instructions on how to pair an iPhone with it using Bluetooth. I chose "calm," which meant attaching a small triangular module to my right temple using an adhesive and fastening the other end of the strip to the back of my neck. (For "energy" I used a different adhesive and put it on the back of my ear.)

After downloading the Thync app, I selected a 10-minute calm vibe, in which a woman's voice walked me through the session, telling me to relax and how to adjust the energy as mellow guitar music played in the background. After a few minutes she instructed me to increase the level of intensity to find my "sweet spot." Yet when I did the electrical current became a pinching, almost painful buzz that gave me a slight headache and forced me to readjust the module on my temple several times. After a while I found a tolerable position and level. I was anything but relaxed—I couldn't wait to get the module off my head, though I did feel less stressed for an hour afterward. My attempted energy boost the next day didn't go much better. I quit midway through the 15-minute session after adjusting the module several times and feeling painful shocks.

Thync's co-founder and CEO, Isy Goldwasser, says my experience is common for first-timers because getting the module in just the right place takes practice. "It usually takes three to five times, and after that it's something you look forward to," Goldwasser says. At his recommendation I tried again with help from a Thync rep via Skype and had a more soothing experience. Yet afterward I didn't feel much outside of a sore and tender temple.

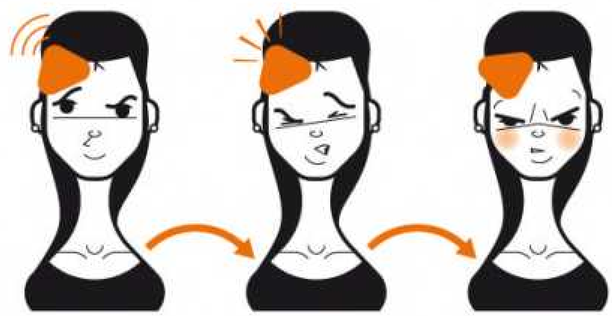


ILLUSTRATION BY MARTÍN LAKSMAN

A 2015 BEST WORKPLACE FOR DIVERSITY

COMPANY SPOTLIGHT

CADENCE

A CULTURE OF INCLUSION AND DIVERSITY FOSTERS INNOVATION

Innovation thrives on risk-taking, diversity, and collaboration. An inclusive culture makes **Cadence** a key player in the future of electronics.

EXECUTIVES AT CADENCE, a leading company that enables the design of electronic systems transforming the way we live and work, inspire collaboration among employees to exceed exacting customer demands. A diverse workforce and culture of inclusion allow the company's ranks to rise to this challenge.

"Cadence believes that having a dynamic team open to diverse ideas is essential to our ability to innovate in all areas," says Tina Jones, senior vice president of global human resources at the San Jose, Calif.-based company. "This helps us to think big, be agile, and bring cutting-edge, high-quality products to our customers."

A top priority of CEO Lip-Bu Tan has been to bolster open communication among Cadence's 6,500 employees. The company's motto—*One Cadence, One Team*—is the bedrock of this message, but Jones points out that diverse viewpoints are encouraged.

"We don't shy away from differences," she says. "Our motto means we support each other and respect and value that individuals come to their jobs from different perspectives." With five consecutive years of increasing revenues and a 460% increase in the stock price since 2009, there's good reason to think this commitment is tied to its success.

Nearly half of Cadence's U.S. workforce is comprised of ethnically diverse employees who also hold nearly half of director and executive positions. But management believes they can do better and are committed to driving diversity of thought and background.

Jones says Cadence supports women in STEM careers, for example. "Our Cadence Women's Forum connects women across the company and creates a network for learning and engagement," she says. "We're also committed to providing educational opportunities to students through our software donation program that reaches approximately 1,000 universities around the world."

According to Jones, "Creating a culture that is not just diverse but also inclusive is what drives continuous success for our customers and our business."

cadence®

95%

of employees feel Cadence is an inclusive and fair workplace regardless of age, race, gender or sexual orientation.

94%

of employees say they work on great challenges and have exciting opportunities to innovate.

5 Best Business Books

THESE MUST-READS WILL HELP YOU BREAK OUT OF RUTS AND GET INSPIRED FOR 2016. *By Verne Harnish*

STRATEGY

EXPONENTIAL ORGANIZATIONS

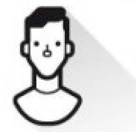
By Salim Ismail

Every business in every industry faces threats from upstart competitors who do things better, faster, and cheaper. That doesn't mean you have to stand by and let the next unicorn trample you. This hard-hitting manifesto will show you exactly how to fight back. Ismail has worked closely with some of the world's most innovative companies at Singularity University, where he was founding executive director. He unlocks the strategies of these exponential organizations, or ExOs, as he calls them, so we mere mortals can adopt them to achieve 10x growth.

CASH

THE AUTOMATIC CUSTOMER *By John Warrillow*

Repeat customers are crucial. Warrillow explains how to turn them into an even more precious resource—subscribers—who will smooth your cash flow so you sleep better. Any company can do this by using one of the nine subscription models he identifies. The predictable revenue this drives will significantly amp up what a buyer will pay for your business. Companies with subscription models are valued at three to five times revenue—a significant premium over what most companies get.

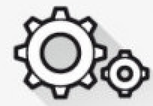


PEOPLE

BUYER PERSONAS

By Adele Revella

Most companies rely on generic [big] data or outright guessing to understand how their customers make buying decisions. But this only scratches the surface. Sophisticated marketers need to understand how to assemble accurate customer profiles that give better insight into the why and the how behind their buying decisions. Revella's systematic approach takes you beyond the usual demographic descriptions so you can probe the minds of seemingly similar clients who are actually very different.



EXECUTION

TEAM OF TEAMS

By Gen. Stanley McChrystal

There's a revolution afoot in the military. The very organization that gave us the command-and-control structure is abandoning it in the face of new, quick-moving opponents. So should you if you want your business to survive 21st-century competition. Drawing on the model used by Navy SEALs, retired four-star general McChrystal will show you how to reorganize your company into teams of autonomous leaders capable of making the split-second decisions necessary to winning today.

CELEB CEO PICK

UNCONTAINABLE *By Kip Tindell*

The Container Store has fans as avid as Apple's and a workplace as appealing as Google's—despite selling wastebaskets and closet organizers. It has a staff turnover of less than 10% and turns away 96% of applicants. In *Uncontainable*, its co-founder and chairman shares the blueprint of how the Container Store has pulled it off. Read this book now and shamelessly steal the great ideas that keep the retailer on *Fortune*'s Best Companies to Work For list every year.

VERNE HARNISH IS THE AUTHOR OF *SCALING UP*.

ILLUSTRATIONS BY MARTÍN LAKSMAN


Capital One
You are meticulous about every
DETAIL IN YOUR BUSINESS.
But are you missing some cash back from your
BUSINESS CREDIT CARD?
Capital One
SPARK
BUSINESS
0000 1234 5678 9010
SWITCH TO THE SPARK® CASH CARD FOR
UNLIMITED 2% CASH BACK ON EVERY PURCHASE
Own a business credit card that meets your high standards.
Get the details by visiting us at CapitalOne.com/SmallBusiness.
Credit approval required. Offered by Capital One Bank (USA), N.A. ©2014 Capital One


Inventory for a cognitive era.
When a product is "hot," how do you keep the right styles and sizes in stock and ready for customers to buy? To help reduce lost sales, major retailers can use cognitive technology to look at structured data like sales reports and unstructured data like tweets and weather feeds. When your business thinks, you can outthink out-of-stock.
outthink
trends

Pursuits

2015 GIFT GUIDE: SMART PICKS FOR ALL TYPES

It's easy to lose hours in search of the right holiday gift for everyone on your list. To ease the stress of holiday shopping, *Fortune* has culled a list of great picks for all types, from the motorcycle maven to the Star Wars superfan. ***By Kate Flaim***

MARKET EDITOR: CHLOE LIESKE

The urban adventurer

Keep your favorite bike commuter in the fast lane with these luxe add-ons.

1. Velorbis bike accessories

Stylish, practical stuff: A foldable briefcase attaches easily to a bike; a rear rack holds whatever the day requires.

Briefcase: **$202**
Rack: **$120**

velorbis.com

2. TiGr lock

Dump the U-lock and slip on this slick titanium bow, available in three lengths for easy carrying or extra locking options.

$175

tigrlock.com

3. Independent Fabrication bicycle

For the ultimate, order a custom-built ride. This bike, with frame made by Independent Fabrication in New Hampshire, was built at NYC Velo.

This bike: **$4,500**

nycvelo.com

4. Connected pedal

Switching to this pedal adds automatic GPS, anti-theft measures, and activity tracking to any bike. Bonus: It recharges itself as it moves; no plugging in required.

$189

connectedcycle.com

5. Cambium C15 carved saddle

A modern look from the most venerated name in bike saddles. It has an ergonomic cutout to increase comfort on long rides.

$160

brooksengland.com

STYLING BY STELLA REY AT MARK EDWARD INC.

PHOTOGRAPHS BY BRIAN HENN AND J MUCKLE

GIFT GUIDE

The trendsetter

1

1. Moncler Chateaudun jacket

There's no blending into the crowd in this showstopper of a puffer jacket, trimmed with exotic fur and guaranteed to turn heads, whatever the weather.

$2,175

moncler.com

Even ardent sun worshippers will face winter with a smile in these stylish accessories that provide warmth and protection from the elements.

2. Nazanin Rose Matin Amour de Cheval scarf

Half wearable art, half Rorschach test, the kaleidoscopic horses on this cashmere-blend scarf were inspired by the childhood of Iranian-born, British-raised designer Nazanin Rose Matin. She started her career working with designers like Alexander McQueen and Christian Lacroix.

$300

nazaninrosematin.com

2

3. Valextra Zaino Isis backpack

No grade-school flashbacks here: The sculptural lines of this minimalist bag are the height of Milanese chic.

$2,720

barneys.com

3

4. Christophe Fenwick Le Mans classic gloves

Keep him cozy in cashmere and kidskin with these gloves handcrafted in Italy. Designer Christophe Fenwick draws on his lifelong love of classic motorcycles and sports cars to inspire this retro-looking line.

$425

barneys.com

4

From figuring it out to
getting it done, we're here to help.
Bring us your problems. Your challenges. Your just about anything. Because we're not just in the shipping business, we're in the problem solving business. It doesn't matter if you're a big company or you're just you, we'll help make it happen. We're 400,000 people around the world serving more than 220 countries and territories, ready to roll up our sleeves and get to work. So bring us your ideas, your questions, your boldest business plans yet. ups.com/solvers
ups
ups united problem solvers™
Copyright ©2015 United Parcel Service of America, Inc.

GIFT GUIDE

The homebody

1

2

1. Drink rocks

A new shape for the classic nondiluting drink rock. Chill the marble and soap-stone pieces in the freezer to keep that mescal cold to the bottom of the glass.

$35

areaware.com

2. Antidote chocolates

Can chocolate count as health food? Antidote certainly tries, combining the antioxidant power of raw cacao with exotic flavor blends like coffee cardamom. Healthy? Maybe. But certainly a new take on indulgence.

$7 per bar

antidotechoco.com

3. Chelsea Miller chef's knife

Vermont-raised Miller repurposes materials from her family farm to craft distinctive kitchen tools cum objets d'art.

$800

chelseamillerknives.com

4

5

5. Juicepresso Platinum

A patented one-piece extraction system makes it easy to enjoy cold-press juices, then chuck the messy parts right in the dishwasher.

$550

juicepressousa.com

4. El Jolgorio Mezcal Pechuga

This exceptional, unusual-tasting mescal is crafted by a master distiller in Oaxaca, Mexico.

$140

Flatiron Wines and Spirits, 212-477-1315

Give stay-at-home types and expert entertainers a passel of excuses to relax indoors with these tools and treats.

3


Preoccupied with managing your fleet?
That's where AT&T can help. We offer a suite of end-to-end asset and fleet management solutions proven to provide near-real-time visibility virtually anywhere. Leaving you free to focus on what matters most.
AT&T Business Solutions
att.com/fleet-management
MOBILIZING YOUR WORLD™
© 2015 AT&T Intellectual Property. All rights reserved. All other marks used herein are the property of their respective owners.

GIFT GUIDE

The gadget lover

1

2

5

6

1. Devialet Phantom speaker

Packed with patented technologies, these sleek podlike speakers (Bluetooth- and Wi-Fi-enabled, of course) combine digital and analog amplification with high-pressure woofers for powerful sound without distortion.

$1,990

en.devialet.com

2. Star Wars hologram

Celebrate the new Star Wars movie the geekiest yet most appropriate way, with a licensed hologram of favorite moments from a galaxy far, far away. (We think R2-D2 projecting Princess Leia's cry for help is deliciously meta.)

$250

holograms.zebraimaging.com/star-wars-store

3. Skully AR-1 motorcycle helmet

A 180-degree blind-spot camera and see-through heads-up display make for a safer ride, Bluetooth connectivity to the smart sound system keeps it entertaining, and the killer design provides futuristic superhero looks: What's not to like?

$1,499

store.skully.com

4. Torque t096z headphones

Perfect for the ardent audiophile who appreciates a wide range of musical styles, these customizable earbuds come with six interchangeable "Torquevalves" to optimize sound quality for everything from jazz to hip-hop.

$330

torque.audio

5. 360fly camera

Water- and dirt-proof, this little camera captures 360-degree video and makes sharing the results fast and easy.

$400

shop.360fly.com

6. Fluidstance

Standing-desk enthusiasts will relish this balance board. Crafted from bamboo and recycled military-grade aluminum, it's designed to keep them in constant (but barely noticeable) motion while they work.

$429

fluidstance.com

Thrill everyone on your list with the latest tech toys for every pursuit—from extreme sports to workday fitness.

4

3


G450
CABIN ALTITUDE: 5,000 FT*
PASSENGERS: UP TO 19
SIGNATURE OVAL WINDOWS: 12
CABIN BLISS
Anyone can travel, but few will travel in the unsurpassed comfort and style of the Gulfstream G450™. From 100 percent fresh-air circulation and low cabin noise levels, to a comprehensively equipped galley and an intuitive touch-control entertainment system, the G450 has cabin amenities to help you cross continents and arrive refreshed and relaxed wherever your destination.
SCOTT NEAL | +1 912 965 6023 | scott.neal@gulfstream.com | GULFSTREAMG450.COM
*At the typical initial cruise altitude of 41,000 ft
Gulfstream™
A GENERAL DYNAMICS COMPANY

Your Path to Profit

Embrace business aviation to blast through your barriers.

YOU NEED TO FLY your best personnel to Europe to close a deal. Or maybe you need engineers on the ground in India to troubleshoot a construction delay. A six-city road show? You can choose to do that in two weeks—or two days.

Read: Business aviation is the key. While your competitors are battling their way through security checks, fighting fatigue, and missing out on quality time back home, your people could be maximizing every minute while boosting your bottom line—and retaining their sanity.

But truth be told, your competitors may already be using business aircraft. "Companies that utilize business aircraft are on average better performers from the shareholders' point of view as well as in the retention of talent and the ability to reach markets quickly," says business aviation consultant Robert Hobbi, whose Scottsdale company ServiceElements works with corporations to streamline their travel operations. "There's factual proof of this everywhere."

The upcoming Bombardier Global 7000 offers four distinct living spaces for leisure and productivity alike.

Hobbi has been coaching clients for three decades and has seen the business aviation community rally into one of the most vital and powerful elements of modern business. This is not only because of the vast efficiency benefits, but also because business is changing in ways that practically demand their use. "With the advent of technology, you can see in general—even without aviation—that the movement of companies is much faster now," Hobbi explains. "It used to be that when a company would, for instance, introduce a product, there would be a pretty long period of time testing it out to make sure it works. You had the luxury of time on your side to develop it and introduce it. But now that time has shrunk immensely, and

Delta Private Jets is one of the world's biggest charter and jet card companies, offering seamless integration of commercial and private aviation services.

the speed with which executives, R&D teams, and company representatives have to react is huge—everyone has to be much more agile."

Of course, for many companies the challenge of integrating business jets into their strategic plans is significant. Aircraft are undeniably complex financial investments, and building a case for their use requires complete understanding of options, capabilities, and the totality of their management—from flight crew selections to fuel purchasing to maintenance and storage. But fortunately, there has never been a time when it's been easier to test the waters than today. There are aircraft options for every conceivable mission and strategies for tapping them ranging from purchasing an aircraft to chartering to fractional ownership to hourly jet cards—and every combination of these options. Delta Private Jets even offers a jet card that meshes seamlessly with commercial airline operations.

If you dip your toe into the world of charter or jet-card-based flying—or take the plunge with an ownership strategy yourself—the benefits will emerge on the first flight and extend into the long term. Take it from one of Hobbi's clients, who recently said, "I'll sell my house before I sell my jet."

SPEED IS OF THE ESSENCE

The ability of corporate fliers to sidestep airline bottlenecks and hub routing is well known: Flying direct simply gets you there faster. But the speed benefit can originate with the airplanes themselves. The lightweight, finely tuned birds possess the aerodynamics and engine power to move faster than commercial jets—flying at Mach 0.90 and above, compared with a maximum speed of Mach 0.80 and slower for airliners.

That may not sound like much, but according to Steve Cass, Gulfstream Aerospace's vice president of technical marketing and communications, the difference is tremendous. "Our business jets are time machines in more ways than one," he says. "That difference amounts to 50 hours per year of saved time—a number that truly resonates with corporate fliers. That means they're spending more time at home. But high-speed aircraft also reduce maintenance costs, since that's based on hours in the air and on crew schedules. After all, would you rather have them working 16-hour days, or 14?"

Gulfstream's new aircraft—the G500 and G600 announced last year—and their current models, including the G650 and G650ER, can bridge city pairs in record time and exceptionally economically. They're also stocked with cutting-edge technology to improve passenger productivity and comfort in the cabin—think separate areas for work and relaxation, big windows for natural light, and whisper-quiet interiors—as well as enhance safety up front. The cockpits feature Gulfstream's Symmetry Flight Deck, which includes fly-by-wire side-stick controls that move together when one is activated—as opposed to other systems in which the unused stick remains static—providing both pilots with full awareness of who's got control of the aircraft. It's that level of attention that maximizes your safety while still speeding through the skies.

COMFORTS OF HOME AND OFFICE

You wouldn't conduct a sensitive business meeting in public—but that's precisely what most business fliers are forced to do while traveling in the commercial air system. "Privacy is hugely important when it comes to flying," Hobbi says. "It's very difficult to be able to confidently engage in telephone calls and conversations with colleagues with others in earshot—regardless of whether or not they're potential competitors. When you need to be discreet, you can do that with a business aircraft. You know everyone on board."

Furthermore, business aircraft are increasingly capable as both flying boardrooms and staterooms. "We work extremely hard to provide the best cabin experience in business aviation," says Brad Nolen, director of product strategy and marketing, Bombardier Business Aircraft. "We achieve this by designing interiors that seamlessly combine the comforts of home with the most efficient business tools, allowing you to be productive on your journey."

Bombardier's Global 6000 aircraft ensures that you reach your destination rested, refreshed, and ready for the day ahead. It will offer the fastest Internet connectivity worldwide for videoconferencing and streaming of high-definition content, and the plane features an exceptional and convenient stand-up shower.

The Global 6000 delivers the perfect combination of uncompromising quality, ingenuity, and luxury to connect passengers to the people and places that matter the most. "We pride ourselves on manufacturing aircraft that offers high-speed performance without compromising access to difficult runways," Nolen says. "The Global 6000 aircraft is the largest business jet capable of accessing the world's most difficult-to-reach airports, like Aspen and London City, which is not possible for most other business jets. The Global 6000's ability to connect challenging airports seamlessly is unprecedented and emblematic of the performance and luxury that comes standard with flying this amazing plane."

It's not just the biggest corporate jets that provide this sort of comfort and capability. New generations of small to midsize jets are emerging that are light, agile, and supremely comfortable—and perfect for a wide array of missions. It's at this level of aviation where you're able to truly fine-tune your selection and maximize your efficiency. Remember: Every extra pound of sheet metal is another pound you have to fly—so right-sizing your airplanes is essential. If you don't absolutely need to fly 19 people to China, then don't opt for an aircraft that can.

Embraer Executive Jets offers two new options to answer this criteria: its new midsize Legacy 500, which entered service about a year ago, and the newest jet on the market, the mid-light Legacy 450. Both jets are the first to introduce fly-by-wire technology into their classes, and both have the largest cabins, too, with a six-foot ceiling, a flat floor, and seating for up to nine in the Legacy 450, and up to 12 in the Legacy 500. Fully reclining club seats–with options of heating and massage—can be berthed into beds; two in the Legacy 450 and four in the Legacy 500.

Cabin comfort is further enhanced by a low-altitude cabin of only 6,000 feet. In-flight entertainment and communication options include high-definition video system, surround sound, and voice and data connectivity. A full-service galley greets you upon entrance. A cabin-height stowage in the rear of the cabin is complemented by the largest baggage capacity in the mid-light and midsize classes, at 150 and 155 cubic feet, respectively. Your range: up to 2,575 nautical miles in the Legacy 450 and 3,125 in the Legacy 500. East Coast to West Coast: piece of cake, just like going global. Embraer Executive Jets has a worldwide network of 75 owned and authorized service centers connected to a 24/7 customer contact center,

The midsize Embraer Legacy 500 and large cabin Legacy 650 are comfortable, ultra-reliable jets that exemplify extraordinary design and performance.


DO WHAT SEEMS IMPOSSIBLE.
THEN DO MORE OF IT.
In the 10 short years of Embraer Executive Jets, we've certified not one, but four clean-sheet designs. We elevated the standards for the light jet category—and then established a new category of mid-size jets altogether. And today, the world's most delivered business jet is an Embraer. Such progress was only possible due to an amazing history building commercial and military aircraft that achieved similar seemingly impossible accomplishments. Proving you can come a long way in 10 years—when it's preceded by 40 years of preparation.
Rethink Convention.
EMBRAER
Executive Jets
EmbraerExecutiveJets.com

and these new Legacy aircraft can communicate directly to Embraer's network for prompt around-the-globe support.

ADDRESS THE VALUE PROPOSITION

Business aviation is now surging after a long period of struggle in the wake of the recession. Flights are up, and jet manufacturers have a bounty of options to suit any mission—whether flying a large team around the globe or a few key personnel just a few states over. Still, corporate jets remain freighted with significance—both positive and negative—in many circles. That means it's up to corporate leadership to not be squeamish or apologetic about use of business aircraft, Hobbi says. "One of the key mistakes companies do is fail to address this in a very positive and proactive manner, by addressing the value proposition to the shareholders," he says. "You look people in the eye and say, 'This is a business tool, and it does so much for my company. It enables us to accomplish things in a more expedient way.' Puff up your chest and be clear about it. If you don't, you're doomed."

Once you do commit, Hobbi continues, you must be practical about how you integrate the aircraft into your business practices. You do this by consulting with other companies who've had success with internal flight departments and bringing aviation professionals to the table early in the process. Hobbi notes that the smartest companies in this respect will actually use corporate aviation as part of their logistical planning—tapping their aviation experts to advise them on broader transportation and logistics issues, as well as nuanced details about the politics and bureaucracies of flight into and out of particular regions. "The days of pilots being limo drivers are long gone," he says. "Aviation experts should now be used in planning your every move—not just execution."

You also have to be strategic about what resources you tap, and when: Consider combining ownership strategies, chartering for individual flights or choosing jet-card options for more long-term, on-demand access to whole fleets of aircraft, and folding in commercial flights where appropriate. Delta Private Jets, for instance, now offers turnkey access to an entire gamut of flight options. The company has its relationship with Delta, certainly, but is also one of the biggest charter/jet-card companies in its own right. Its fleet includes light, midsize, super-midsize and large jets—most all equipped with Wi-Fi—and the company offers simple, all-inclusive pricing. Notably, this also includes discounted access to Delta's commercial fleet, booked through the same service. "We provide seamless connectivity between commercial travel and private aviation," notes David Sneed, executive vice president and COO. "You are a top-tier customer whenever you travel with us and also receive premium benefits on Delta Air Lines, but you have access to thousands of other airports than just flying commercial alone."

In fact, Delta Private Jets—which also offers management services for any aircraft you own yourself—currently offers a lower initial commitment, including $25,000 or $50,000 jet cards in order to give potential customers the private jet experience without the larger deposit typically required.

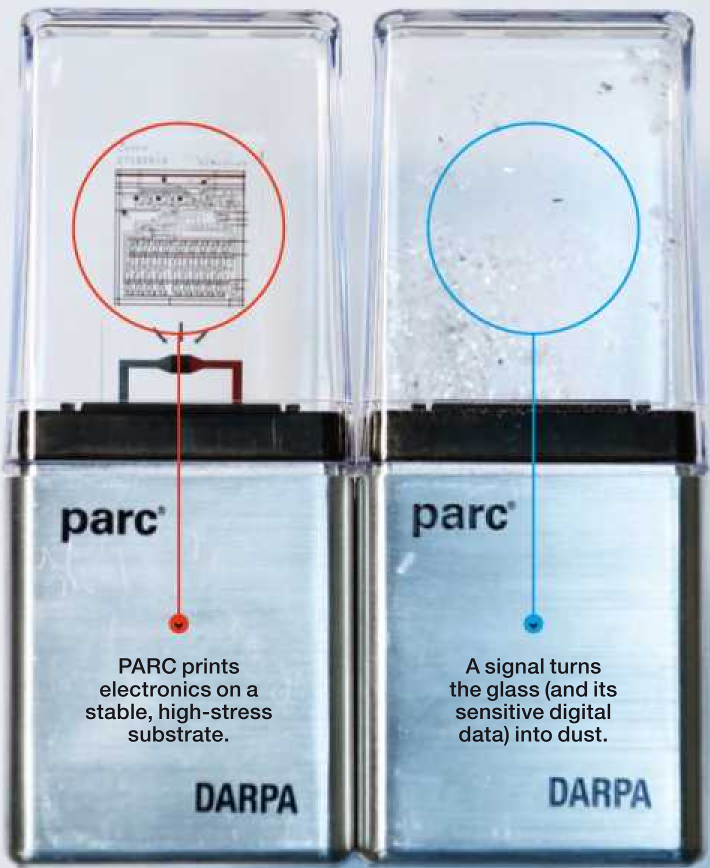
That's intelligence—at cruising altitude. ●

The fast, graceful Gulfstream G650 is the result of collaboration between engineers and a discerning customer advisory board.

Tech

OBJECT OF INTEREST

WHAT: A self-destructing computer chip that explodes on command.
NO MONKEY BUSINESS: The circuitry is printed on a Corning Gorilla Glass panel that shatters into thousands of pieces when triggered by heat, sound, laser, or radio wave.
SNAP, CRACKLE, POP: Residual energy from detonation cracks the chip's crystalline shards into ever smaller pieces like a car's safety glass.
HIGH-STRESS SITUATION: The tech could be used to make destructible cryptographic keys, rendering useless data that falls into the wrong hands.



MISSION POSSIBLE: Xerox developed the splintering slab with support from the U.S. Defense Department's emerging-tech arm, DARPA, which set aside about $18 million for "vanishing programmable resources."
CYBER CYANIDE PILL: Consider a battlefield scenario, says Steve Hoover, CEO of PARC, Xerox's famed R&D unit. "Torture me all you want," he says with a grin. "The keys are gone."
—Robert Hackett

THIS DATA WILL SELF-DESTRUCT

Xerox's disintegrating computer chips

TICKER TAPE
A collection of curiosities

"IT WILL BE LIKE OWNING A HORSE."
SOURCE: *NEW YORK TIMES*

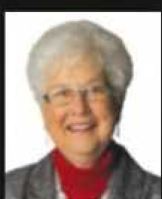
*Tesla Motors CEO **Elon Musk**, on cars that aren't fully autonomous*

EXPLODING CHIP: COURTESY OF PARC, A XEROX COMPANY; MUSK: JASON MERRITT—GETTY IMAGES

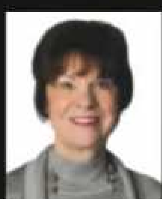
THANK YOU, *FORTUNE*® MAGAZINE AND *GREAT PLACE TO WORK*®, FOR NAMING *ACUITY* A GREAT PLACE TO WORK FOR WOMEN.

On behalf of all the female employees at *ACUITY*, we sincerely thank you!

LAURA CONKLIN
VICE PRESIDENT - BUSINESS CONSULTING

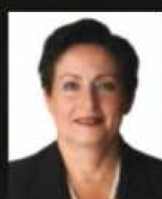


MARGARET FARROW
BOARD OF DIRECTORS



RHONDA KIRKWOOD
BOARD OF DIRECTORS

LISA MAUER
BOARD OF DIRECTORS



JOAN RAVANELLI MILLER
GENERAL COUNSEL & VICE PRESIDENT - HUMAN RESOURCES

SHERI MURPHY
VICE PRESIDENT - SERVICES & ADMINISTRATION

WENDY SCHULER
VICE PRESIDENT - FINANCE

ACUITY

Our Focus Is You

John Deere, Modern Farmer

THE TOP MAKER OF AGRICULTURAL MACHINERY LOOKS TO SOFTWARE TO FIGHT SLUMPING SALES.

By Michal Lev-Ram

Deere's Field Connect system monitors soil moisture.

COURTESY OF JOHN DEERE

IF YOU WANT TO get a sense of John Deere's grip on the agriculture industry, head to Iowa, one of the world's largest producers of corn. More than 2 billion bushels of the common grain (much of which is used for ethanol production) will be harvested from the state's 12.6 million acres this year alone. Despite massive consolidation across the industry, most of those acres are still owned by family-run farms, and most of those families have more than corn-growing in common: For decades they have relied on Deere machines to cultivate their crops.

"We 'bleed green,'" says T.J. Coughenour, a fourth-generation farmer in the small town of Maxwell (pop. 916). Beside him, lined up in front of an immense cornfield, are three gleaming Deere machines, including the original "cab" purchased by his grandfather more than 40 years ago.

In this Midwestern state, Deere's iconic green tractors, combines, balers, and sprayers are almost as much a part of the natural landscape as cornstalks and cows. (Fun fact: There are more cows than people in Iowa.) Though the 178-year-old company's headquarters are in neighboring Illinois, its enormous presence in Iowa is a testament to its dominance in agribusiness. Deere controls an estimated 60% of the U.S.

$14.6 BILLION VALUE OF M&A ACTIVITY IN 3Q 2015 AROUND THE "INTERNET OF THINGS" →

EY

farming-equipment market. But despite that supremacy (and the multigenerational loyalty of farming families like the Coughenours), the tractor maker faces strong headwinds. Soft commodity prices have weakened demand for farming equipment and caused Deere's revenue to tumble to $36.1 billion last year, a 5% decrease from the year before.

To help combat the decline, Deere has turned to a new source of revenue: software services that deliver information and counsel to farmers in the field.

"What we're trying to do is put another leg on the 'ag stool,' if you will," says Samuel Allen, the company's CEO. "A farmer might not have to buy a new piece of equipment every year, but he's still doing the data every year. That part of the business can be more constant."

Deere has a long history of technological innovation. The company first released tractors with autonomous features in 2002, well before Google began its driverless-car project. "We've had embedded technologies in our cabs for a long time," says Matt Olson, product line manager for Deere's Intelligent Solutions Group. "But like most people today, our customers are carrying around iPads with them."

So Deere is investing heavily in software. In a nondescript office just outside Des Moines, Olson's teams are hard at work developing apps that help farmers manage their fields from their mobile devices. One of them, called SeedStar Mobile, lets farmers monitor factors such as the spacing between planted seeds and "singulation" (the term that describes the deployment of a seed from the meter, the machine that regulates seed flow) row by row. Today there are more than 200,000 Deere machines that can wirelessly transmit agronomic data to remote servers to be organized, analyzed, and tapped for other applications (such as coordinating multiple machines in the same field).

Deere has also looked outward to jump-start its technological initiatives. In early October the company introduced SageInsights, a joint venture with Colorado software company DN2K, which is developing a cloud-computing platform to allow retailers and consultants to manage their agronomic data in one place. One month later Deere revealed that it would open a data link between its machinery and Monsanto's Climate Corp. division to allow the latter to deliver farmers advice based on weather and crop data. (As part of the deal, Deere acquired Monsanto's Precision Planting unit, which makes seeding equipment.)

Corporate partnerships and software integrations can certainly help John Deere boost its technological prowess in the short term, but the company faces the longer-term challenges of attracting employees with skill sets that match its new businesses. Deere has long hired workers from the farming community it serves. Can it also attract tech-industry talent?

"We can't rely on being the employer of choice only for people involved with farming," says Allen, who says it makes sense for John Deere to set up shop someday in Silicon Valley.

In the meantime the CEO is not worried about future demand for Deere products: "The world needs to eat." F

Active Fill Control uses cameras to ensure that the harvest is evenly deposited, not spilled.

COURTESY OF JOHN DEERE

27% SOFTWARE / 6% HEALTH CARE / 5% AEROSPACE / −10% TELECOM % CHANGE IN R&D SPENDING BY INDUSTRY, 2014–15

SOURCE: STRATEGY&/PWC

StubHub: A Hot Ticket

THE TICKETING COMPANY LOST A STEP AFTER EBAY ACQUIRED IT. NEW PRESIDENT SCOTT CUTLER SAYS IT'S BACK ON TRACK.

By Erin Griffith

At the NYSE, Cutler won the biggest IPO in history: Alibaba.

WHEN EBAY PLUNKED DOWN $310 million in 2007 for ticketing marketplace StubHub, Apple had just introduced the iPhone. As smartphone sales surged, a new class of mobile-first ticketing startups—TicketsNow, RazorGator, SeatGeek—emerged, and StubHub fell behind. The San Francisco company languished as its corporate parent sparred with activist investors and ultimately spun off subsidiary PayPal. (Some say StubHub is another candidate.) Last year a new pricing scheme sent ticket sales into a downward spiral, forcing StubHub to backtrack. Chris Tsakalakis, the president who engineered the plan, left.

StubHub needed a leader. Rather than hire an executive with experience in e-commerce or entertainment, it tapped someone with a competitive streak and a fresh perspective: Scott Cutler, head of global listings at the New York Stock Exchange. There, Cutler pounced on the opportunity created when rival Nasdaq botched Facebook's IPO. He grabbed a big chunk of the tech IPO market for the NYSE, including high-profile debuts by Twitter and Alibaba.

In the six months since he joined StubHub, Cutler has tackled the company's ugliest problems. He reversed the new pricing policy in September, boosting ticket sales by 33%, from 0.9 tickets a second to 1.2 a second. He also oversaw the final stages of a “replatforming” that in June created a unified “code base” for StubHub's apps and websites and allowed it to deploy updates daily rather than monthly.

The ride hasn't been smooth. The replatforming project initially erased features such as sorting, filtering, and group payments. And Parag Vaish, integral to the project as director of mobile product management, left StubHub in October.

Still, early results show promise. Cutler says October was a record month for sales, and last quarter StubHub drove eBay's overall growth in gross merchandise volume. eBay doesn't break out StubHub's revenue, but in 2014 it made about $700 million on $3 billion in ticket sales.

Cutler plans to maintain the momentum. Increased competition means sellers (40% of which are professional brokers) have more places to sell tickets; StubHub plans to build data analytics tools to keep them on the site. Only 10% of the company's sales are international; StubHub has begun entering new markets, starting with Germany. Thirty percent of fans who didn't attend an event say it's because they were unaware of it; StubHub rolled out personalized recommendations.

As for ticket sales? Cutler isn't shy about his plans to compete more directly with Ticketmaster by expanding from the $6 billion secondary-ticket market to the $20 billion primary one. Buyers don't distinguish, he says. “The customer thinks, ‘I want to go to an event. I want to buy a ticket.’”

CUTLER: COURTESY OF STUBHUB; FLAGS: GETTY IMAGES

1993: **0.7** vs. **2.4** 2013: **2.1** vs. **2.7** GROSS DOMESTIC EXPENDITURE ON R&D AS % OF GDP

OECD

Formula 1(01001011)

THE POPULAR AUTO RACING SERIES ALSO SERVES AS A PROVING GROUND FOR SENSORS, SOFTWARE, AND DATA-DRIVEN DECISIONS. *By Stacey Higginbotham*

T**HE PIT ROW** at the Circuit of the Americas in Austin, home to the only Formula 1 championship race in the U.S., is packed with fans. Some people clutch their ponchos and wince as gusts whip along the asphalt. Others snap photos of themselves with the cars and hope for a glimpse of their favorite driver. When one finally makes an appearance, a scrum surrounds him, asking for autographs and selfies. The vehicles are momentarily forgotten.

But these machines, each valued at more than $9 million (a steering wheel alone is worth $77,000 or so) are more than just pricey contraptions capable of whizzing around the track at more than 200 miles per hour. They are also intelligent, thanks to the many dozens of sensors fastened to them. Each sensor communicates with the track, the crew in the pit, a broadcast crew on-site, and a second team of engineers back home in Europe.

Most Formula 1 spectators expect the race to be won or lost in the hills and hairpins of a Grand Prix circuit. What few realize is that it's also playing out in powerful, interconnected computers around the world. A Formula 1 race is a high-stakes example of the so-called Internet of things, where teams tap tremendous amounts of real-time data culled from physical objects. The sport's use of such information is so sophisticated that some teams are exporting their knowledge to other industries where analyzing enormous amounts of information in the blink of an eye can mean the difference between life and death. For example, British automaker McLaren is sharing its data systems expertise with ConocoPhillips for use on oil rigs.

"We measure whatever we need to manage during the race, and then we model to get the predictive intelligence on how the cars are going to perform," says Geoff McGrath, chief innovation officer at McLaren Applied Technologies.

The McLaren team builds its race cars for each track based on historical data and

KEITH D. RIZZO—CIRCUIT OF THE AMERICAS

57% FINANCE / **46%** TELECOM / **39%** AIRLINES / **30%** E-COMMERCE

COLUMBIA BUSINESS SCHOOL/AIMIA INSTITUTE

Consumer comfort *with industries handling their personal data* →


MALAYSIAN JUNGLES
CANDY SALES
Qlik® helps you find unexpected connections in your data.
Qlik sees the relationships other data analytics solutions don't. Our unique associative model helps you see the whole story that lives within your data so you can make better, more informed business decisions.
© 2015 QlikTech International AB. All rights reserved.
Qlik
qlik.com/wholestory

simulations generated by the current season's sensor data. It builds prototype parts with 3D printers and tests them in wind tunnels. Approved designs are constructed in carbon fiber. The process ensures that every aspect of the car's design is based on data.

Sensors are installed along a car's chassis, in its tires, and throughout the engine. They measure the stress and downward force of the air on the car's nose, brake temperature, tire pressure, and even whether the car is sliding or actively turning a corner. Sensors attached to the suspension measure the car's speed as well as how force affects the vehicle. And that $77,000 steering wheel? It's packed with knobs, buttons, and pedals that can do everything from slow down the car to deliver a shot of liquid to the driver through his helmet at the press of a button.

Yet for all the data generated by the car, the driver sees little of it. "We keep it to a minimum," says Alan Peasland, head of technical partnerships at Infiniti Red Bull Racing. "They are maxed out on their cognitive capacity driving these cars."

Formula 1 has strict rules about the number of team personnel allowed at the track. Infiniti Red Bull, for example, has 60 engineers on-site and 30 in England. It takes less than 300 milliseconds for the data from the farthest track in Australia to reach Infiniti Red Bull's U.K. team, Peasland says, which runs simulations to determine race strategy for everything from a tire change to an attempt to overtake another driver. "Gut-feel decisions just aren't made," he says.

Data analytics haven't solved everything. There's still no way to get an accurate sense of where the cars are laterally on the track, and it's impossible to determine how well a tire is gripping the roadway. The only person who can tell that is the driver. Says McGrath: "The driver is still the best sensor we have."

The steering wheel of Sauber F1 Team driver Felipe Nasr

FLYING TOO CLOSE TO THE SUN

Ascendant blood-diagnostic startup **THERANOS** comes under scrutiny. ***By Andrew Nusca***

The secrecy that the startup is known for became a liability once public opinion turned on its technology.

"NEVER REGRET THY FALL, O Icarus of the fearless flight, for the greatest tragedy of them all is never to feel the burning light." The sentiment behind these words, attributed to Oscar Wilde, surely must be on the mind of Theranos CEO Elizabeth Holmes as her blood-testing startup struggles in the wake of a *Wall Street Journal* report raising doubts about its technology. According to the report, as of December 2014 only 15 of the more than 240 finger-stick blood tests Theranos offers were being performed on the proprietary machines responsible for the company's $9 billion valuation. (Theranos replied that it was then doing 80 such tests.) Then came the questions: Were its tests even accurate? Why wasn't its Walgreens partnership taking off? Did Holmes misrepresent the company's progress? One looming question is how the U.S. Food and Drug Administration will act after classifying the Theranos "nanotainer" an unapproved medical device. But the biggest question of all is whether a supposedly game-changing Silicon Valley startup can show the world that it knows how to play the game.

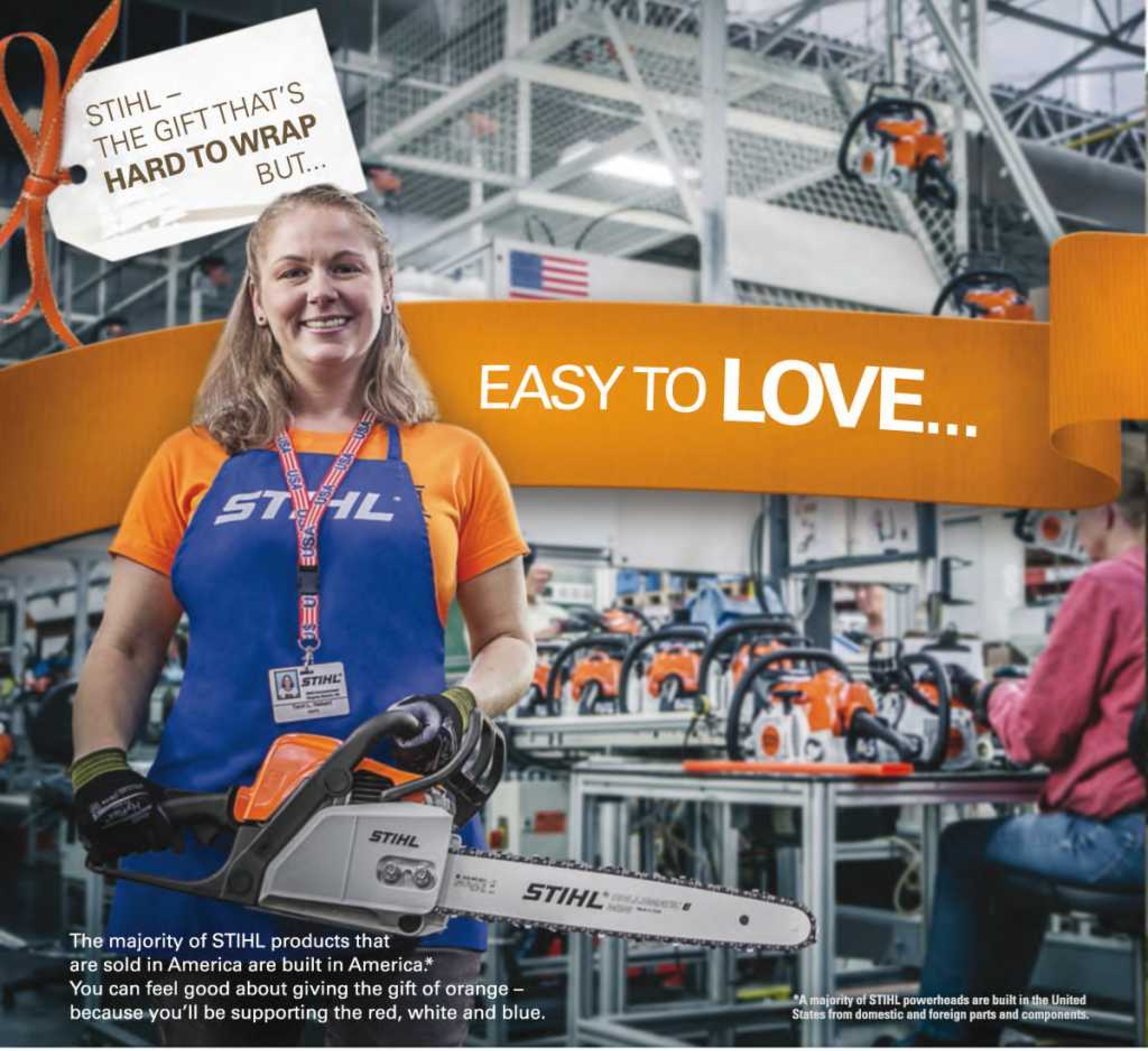
THERANOS: DREW KELLY; STEERING WHEEL: LUCA BRUNO—AP; MCDERMOTT: ALBERT GEA—REUTERS

"I FEEL LIKE I'M ON A MISSION."

NEW YORK TIMES

*SAP CEO **Bill McDermott** on his firm's push into health care after he lost an eye*


STIHL,
THE GIFT THAT'S
HARD TO WRAP
BUT...
STIHL
©2015 STIHL
STIHL®



GIFT IDEAS
Under $100

Helmet System

Performance Chaps

GIFT IDEAS
Under $50

Chain Saw Carrying Case

MotoMix®

FOR MORE GIFT IDEAS, GO TO
STIHLusa.com/holiday

GIFT IDEAS
Under $50

Brush Shield

Hand Pruners

GIFT IDEAS
Under $25

Ear Muffs

Glasses

FOR MORE GIFT IDEAS, GO TO
STIHLusa.com/holiday


EASY TO USE...
STIHL FS 38
STIHL engineers continually strive to create ergonomic, lightweight designs to get the job done.
TRIMMERS STARTING AT:
$129.95
STIHL®


STIHL – THE GIFT THAT'S HARD TO WRAP BUT...
EASY TO FIND...
At STIHL, we believe our customer's experience should be first rate. That's why we choose to sell exclusively through servicing Dealers who know the equipment they sell, and service the equipment they sell.
INDEPENDENT WE STAND
GIFT IDEAS Under $50
Pruning Saws
Woodcutter Forestry Axe
GIFT IDEAS Under $25
Stocking Stuffers
BUY APPAREL AND MORE ONLINE AND GET IT SHIPPED TO YOU


EASY TO BUY...
STIHL express
With STIHL, you get a premium gift at an affordable price that comes fully assembled and ready to run. And with STIHL Express, you can reserve your equipment online and pick it up in the store.
BLOWERS STARTING AT:
$139.95
STIHL

AND, OF COURSE, STIHL IS...

EASY TO GIVE

With our wide array of equipment, there's a STIHL for almost everyone and almost every task. Give the gift of STIHL and you'll give a gift that will keep on giving – giving power, dependability and reliability.

Start checking off your shopping list today at STIHLdealers.com.

For more gift ideas, go to
STIHLusa.com/holiday

For product info:
STIHLusa.com

/stihlusa

STIHL®

Star Wars merchandise could generate $375 million or more in sales for Hasbro in 2015, capping a stellar year for toy companies.

COURTESY OF HASBRO

TOY STORY

Merchandising deals with movie franchises have helped make this a great year for toy sales. Some investors see a hit sequel for toymakers' stocks in 2016. *By Chris Taylor*

IN THE ORIGINAL Star Wars movie, the Force is described by Jedi Master Obi-Wan Kenobi as an "energy field created by all living things. It surrounds us, penetrates us, and binds the galaxy together."

Another characteristic of the Force: It seems to pry open parental wallets.

Star Wars: The Force Awakens, the latest installment of the megafranchise, premieres Dec. 18, right in the heart of holiday toy-buying season—and long after Star Wars merchandise hits the stores. The resulting shopping bonanza is expected to generate more than $375 million in sales this year alone for Hasbro, the toy giant with rights to most of the Star Wars

PHOTO ILLUSTRATION BY DAVIES & STARR

products now invading shelf space like, well, Imperial Stormtroopers.

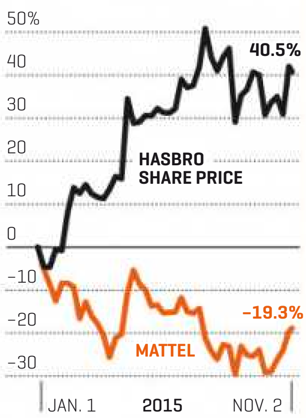
The Jedi holiday jolt, in turn, will cap what's likely to be the toy industry's best year in over a decade, according to Juli Lennett, senior vice president at research shop NPD Group's U.S. toys division. NPD forecasts 6.2% growth this year over last, with U.S. sales nearing $20 billion. Among the big sales gainers through the first half of the year: games and puzzles (up 13%), action figures (8%), and dolls (8%). "It's not just a strong year. It's a great year," says Lennett.

Still, many investors remain leery of the toy industry, and justifiably so. Publicly traded, pure-play toy companies are relatively few and relatively small—and since kids are famously fickle in deciding the next big thing in the school yard, toymakers' revenue and stock prices can be volatile. That said, some analysts and money managers think this year's toy-sales surge will continue—and that the stocks of some of the big names in the industry have more room to rise.

One of the prime beneficiaries of this year's boom, of course, is **Hasbro,** whose stock has already risen significantly thanks to Star Wars fever (see chart). Years ago, Hasbro bet that a "content driven" business model—selling more toys under licensing agreements with popular movie and TV franchises, from *Jurassic*

A TALE OF TWO TOY GIANTS

Smart licensing deals have delivered a great year for Hasbro investors; rival Mattel is playing catch-up in the licensing game.



World to Marvel's *Spider-Man*—would bear the most fruit, says Stephanie Wissink, a managing director at Piper Jaffray.

Now that bet is paying off. "Hasbro has been beating [earnings forecasts], capturing licenses away from Mattel, and getting in deeper with Disney," says Wissink. "They just have huge velocity right now." Wall Street expects that momentum to carry into 2016, producing earnings of about $4 per share, up 16% from 2015, according to consensus analyst estimates.

Hasbro's story line has contrasted sharply with that of **Mattel,** the other industry behemoth, whose stock investors have beaten like a tomato can in recent years. The stock is down 19% this year, as Mattel's stodgy reliance on fading franchises like Barbie and Hot Wheels has stung its sales. Still, Mattel retains considerable size and clout: Its revenue, expected to be $5.6 billion this year, is about 30% greater than Hasbro's. And a recent strategy pivot that has freshened its product line, including a limited run of dolls in the image of pop star and Disney Channel regular Zendaya, has some investors seeing Mattel as an intriguing recovery candidate.

Linda Bolton Weiser, a research analyst at investment bank B. Riley & Co., upgraded Mattel to a buy after it named Christopher Sinclair permanent CEO in April. She anticipates a strong rebound next year, driven by lines like DC Super Hero Girls action figures (a venture with DC Comics) and a new license for Teenage Mutant Ninja Turtles merchandise. Her price target for the stock: $31, up more than 20% from current levels. Weiser also likes Mattel's dividend, currently 6.1%, which the company has increased in recent years; she says Mattel has the cash flow to support the payout even if sales ebb. "For income investors like retirees, the stock is looking very attractive," she says.

Another potential play for investors willing to take a risk on a small-cap: **Jakks Pacific,** a Japanese toymaker that trades on the Nasdaq. A hefty 70% of its sales derive from licenses—industrywide, that figure is about 30%, according to NPD—with partners including Nickelodeon, DC Comics, and Saban's Power Rangers. That heavy reliance on licenses, which can eventually expire or be transferred, means the stock carries greater long-term risk than those of competitors. The upside: Jakks trades at roughly a 50% discount to its peers.

The bumpy rides associated with smallish toy companies and their stocks may be more than some investors can tolerate. Those who want the smoother journey associated with megacap companies could play the toy market by investing in a company that collects royalties from many other toymakers' licenses—namely, the almighty **Disney.** (For a closer look at the pros and cons of investing in Disney, see the next article.)

Ultimately, any investment in toys is an expression of faith in the first law of parental dynamics: People will continue to have babies, those babies will grow into toddlers, and those toddlers will throw tantrums to acquire the latest shiny thing they spot on store shelves. "There is an argument out there that kids are going to turn to mobile devices and never play with toys again," says Piper Jaffray's Wissink. "That is just not going to happen." ■

GRAPHIC SOURCE: S&P CAPITAL IQ; R2-D2: COURTESY OF HASBRO

❖ A 2015 BEST WORKPLACE FOR DIVERSITY ❖

COMPANY SPOTLIGHT

SCRIPPS HEALTH

SCRIPPS HEALTH: THE CHOICE OF EMPLOYEES

When 92% of employees feel their work is more than just a job, that translates into superior performance and great patient care.

AS ONE OF THE LARGEST nonprofit health care systems in the country, Scripps Health treats more than 500,000 patients each year—a number that represents a large and varied slice of the demographic pie.

Such diversity is mirrored in the workforce at Scripps Health. Ethnic minorities comprise 50% of Scripps Health's workforce, and nearly 40% of management positions are held by minorities. More than three-quarters of its employees are women, and 60% of women are in executive and senior management positions.

"We place great importance on the patient experience, so it's important that our employees understand the dynamics and cultural differences of our patients," says Veronica Zaman, corporate vice president of human resources and learning at the San Diego-based company.

Patients treated at a Scripps Health facility are typically there during a vulnerable time in their lives. Speaking with doctors, nurses, and other medical professionals can be frightenting, Zaman says. Receiving care from someone who is familiar with the nuances and customs of a patient's culture is especially important.

"The way a doctor or nurse interacts with a patient and family is going to be different based on their specific cultural dynamics," she says. "Our employees are sensitive to that." For example, when executives at Scripps Health look at the patient population of their hospital in Chula Vista, Calif., near the Mexico border, the population is overwhelmingly Hispanic. Therefore, as part of their training, doctors, nurses, and other employees there receive lessons in conversational Spanish. This makes it easier and more comfortable to interact with patients, and makes the patients more likely to choose Scripps Health because they feel confident that their needs will be met.

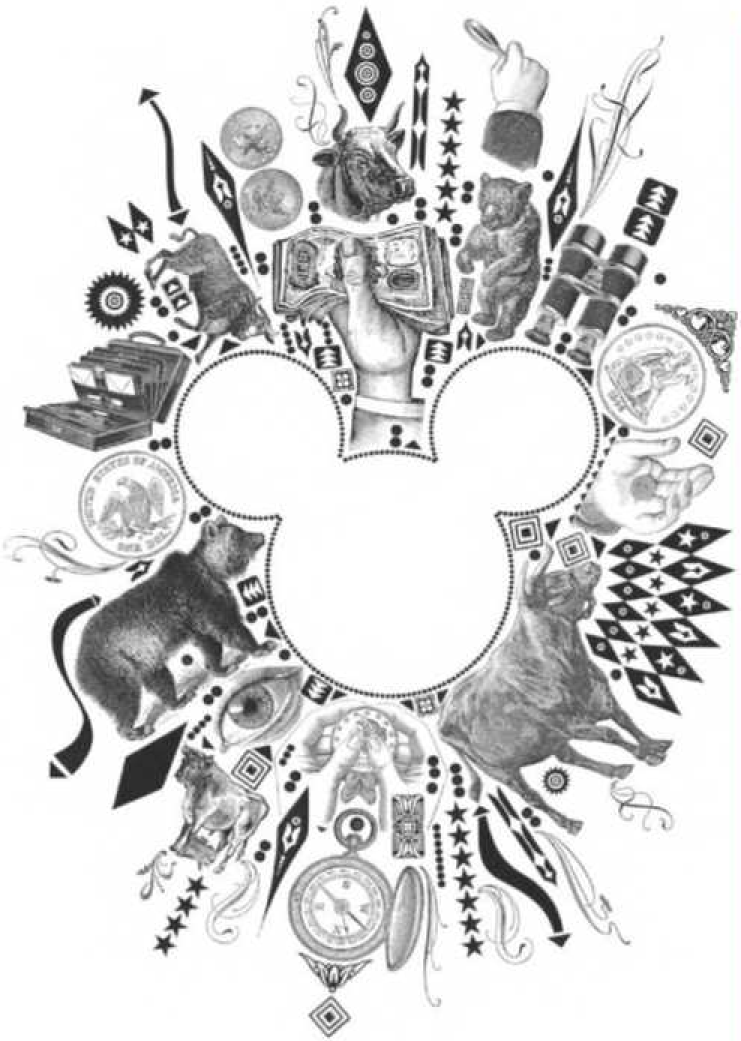
"We're fortunate to be in the kind of business where diversity happens almost organically," Zaman says. "It's good for our company, and it's certainly good for patients."

Scripps

More than **75%** of employees are women and **60%** are in executive and senior management positions.

HALF of employees are minorities and **38%** of management are minorities.

www.scripps.org/careers



WILL DISNEY'S STOCK RETAIN ITS MAGIC?

OVER THE PAST YEAR investors have flocked to Disney's shares, anticipating the release of the first Star Wars movie since Lucasfilm joined Mickey's club. But the stock's 20% rise in 2015 masks some bigger long-term concerns. In August, Disney lowered its revenue expectations as consumers continued to drop cable at an unexpected rate, leaving 3 million fewer households with access to ESPN, its stalwart sports network. For the first time in years, investors say, the movie business is the main factor driving Disney's stock. The big question is whether growing revenue from blockbusters can offset losses from the cord-cutting trend. —*Ryan Derousseau*

ILLUSTRATION BY LORENZO PETRANTONI

BEAR

It's a great company, but Disney is fully valued. Roughly $9 billion, about half of Disney's earnings before interest or taxes are factored in, will come from the traditional cable networks, like ESPN and ABC. Those channels face the same threats as their peers, yet Disney is valued 30% higher. Compared with other theme-park operators, Walt Disney also trades at a 30% premium. There's so much capital needed to maintain theme parks, though, that it should be priced at a level lower than its cable networks. That isn't the case.

This leaves its movie business—which accounts for only 18% of Disney's earnings—driving the valuation. Cable networks have reliable sales based on subscriptions. Studios need hits and a lot of them for a company Disney's size. Star Wars will be fantastic. But even if it creates $1.5 billion of profit every year as Disney rolls out six new movies in the series, as planned, that doesn't justify the premium compared with its peers. The studio business is still small potatoes to ESPN, cable, and the theme parks.

—***Brett Harriss,*** analyst, Gabelli & Co.

Headquarters
Burbank, Calif.
Employees
180,000
Revenue (FY 2015)
$52.5 billion
Business
Entertainment, including film and TV production, cable television, theme parks, and consumer products
Market Cap
$190.7 billion
Share Price
$113 (up 20% YTD)

BULL

Disney is the most strategically thoughtful and prudent media company when it comes to its intellectual-property investments. I think the new Star Wars movie will do north of $2.2 billion from the box office globally. Disney has also inundated the market with Star Wars products in a good way. This will have a big effect, creating a 13% increase in consumer product revenue this year. In an environment where ad dollars aren't great, it's important to have this high-value intellectual property, which it also has in Pixar and Marvel.

ESPN is the real concern. You have a channel in nearly all cable subscriptions, and it's at a high price point. Even if cord cutting increases, ESPN has the most sports content and is a must-have for fans. Plus, it will still have revenue coming from subscriptions for a very long time, with cable cutters growing only between 1% and 2% a year. At [a ratio of 14 times] enterprise value to operating income, we price Disney at a 27% premium to its group and have a target of $130.

—***Ben Mogil,*** managing director of equity research, Stifel Nicolaus

SHARES ARE PRICEY: Disney's share price values the company at 20.1 times its expected 2016 earnings, about 12% higher than the ratio for the S&P 500. **BUT PROFITS IMPRESS:** Disney's earnings for fiscal 2015, announced Nov. 5, were a record $4.90 per share, on net income of $8.4 billion.

❖ A 2015 BEST WORKPLACE FOR DIVERSITY ❖

COMPANY SPOTLIGHT

SALESFORCE

STRIVING FOR MORE DIVERSITY IN TECH

A more diverse workforce means a better understanding of what **Salesforce** customers want.

A FEW YEARS AGO, leadership at cloud-based software firm Salesforce noticed that men disproportionately outnumbered women at their meetings. They took action.

In 2013, they initiated the Women's Surge, explains Cindy Robbins, head of human resources for the San Francisco-based company. The goal: provide opportunities for advancement and make sure at least one-third of meeting participants are women. Salesforce is also tackling the gender wage gap—by assessing the compensation of the company's more than 17,000 employees to ensure equal pay for equal work.

Salesforce is making progress with these goals. Today, women do make up a third of attendees at executive management meetings, and a similar number are speakers at external customer events. The exposure is helping their careers and ability to move ahead, Robbins says. Over the past year, the number of women who received promotions at Salesforce grew by 33%, she adds.

Now, this same focus on diversity will apply to the ethnic makeup of the company's employees. Currently, just a third of workers are minorities. Of that, Hispanic and black employees make up just 6%. "We understand that in order to thrive as a company we need to have the unique perspectives that come with a diverse workforce," Robbins says. "Our customers are not a single mindset, and we can't be either."

Part of the challenge facing Salesforce—and other tech companies—is having access to an adequate pool of diverse tech talent. To help keep the pipeline filled, the company supports organizations that strive to promote technology education and careers, such as Code.org and Black Girls Code. Robbins says Salesforce also works with Hispanic organizations to help students understand computer science and the career opportunities IT can provide.

"It's important to address diversity issues with our existing workforce," she says. "But to be truly effective for the long-run we have to start at the middle school level to make sure minority students are being exposed to computer science and IT and to ensure that they stay in school."

Nearly 53% of new Salesforce hires over the past year were women or minorities.

Over the past year, the number of women who received promotions grew by **33%**

1/3 of attendees at executive management meetings at Salesforce are women.

PHOTOGRAPHS BY **SPENCER LOWELL**

BUSINESSPERSON OF THE YEAR

Nike's Master Craftsman

No. 1

CEO Mark Parker, an introverted sneaker designer, has doubled revenues and profits for the footwear and apparel powerhouse and boosted its stock price sixfold. Here's how he plans to keep the winning streak alive.

By ADAM LASHINSKY

PARKER, WHO STILL OCCASIONALLY DESIGNS LIMITED-EDITION SHOES, INSIDE NIKE'S BLUE RIBBON STUDIO IN BEAVERTON, ORE., USED IN THE EARLY STAGES OF THE CREATIVE AND CONCEPTUAL PROCESSES

TYPOGRAPHY BY MARIUS ROOSENDAAL

It's

ABOUT TIME THE MEDIA discovered Mark Parker," says Phil Knight. "It's like, where have you been? He's been a nine-year sensation."

So begins an interview with the legendary co-founder of Nike, the 77-year-old former accountant who commissioned the ubiquitous "swoosh" logo for $35 and then built a global sneaker empire around it. Knight is still chairman of Nike, but he doesn't talk much anymore to the news media. For that matter, he doesn't do much of anything not of his choosing these days. Heck, he didn't even bother to show up for Nike's biannual meeting with investors, a mid-October celebration of his company's accomplishments. At that gathering Knight's successor, the insufficiently celebrated Parker, made an audacious claim, particularly for such a low-key CEO: He promised to boost Nike's revenue by $20 billion—to $50 billion—by 2020.

When it comes to discussing Parker, though, Knight is more than willing to talk. Since taking over in 2006 from the outsider Knight first recruited for the job, Parker has overseen a more than doubling of Nike's sales. To outward appearances, Knight and Parker are a study in contrasts. Knight is an MBA and still an irascible presence around Nike's Beaverton, Ore., corporate campus. Parker is a soft-spoken shoe designer, known for a thoughtful if demanding management style.

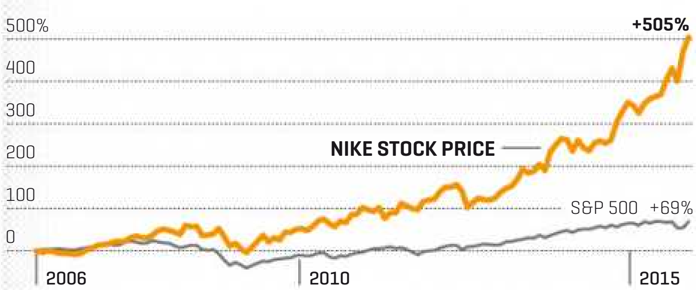
Yet the two are more alike than not. "We're both sort of introverted," says Knight, who is given to terse responses, no matter the question. Asked to explain the current CEO's achievements, he observes that Parker was one of Nike's earliest recruits—he joined a design outpost in New Hampshire in 1979—and has succeeded at every task assigned to him since. "He was one of the first guys we recruited out of college," recalls Knight. "So we've kind of had our eye on him for almost 40 years." Knight recently said he'll relinquish the chairman's post to Parker next year.

Knight, who still controls 20% of Nike, is so in tune with Parker that sometimes they go a month without talking. "I usually know what he's thinking and vice versa," he says. Knight acknowledges initially having had a tough time letting go, and his famous managerial bark endures, including with Parker. "My usual question," he says, "is, 'Why the hell did you do that?'"

By all accounts, Parker's answers have been more than satisfactory. Indeed, the 60-year-old former collegiate runner has ably carried the founder's baton. Of course, the company Parker inherited was no longer the scrappy underdog to global titans like Adidas. Parker has faced the trickier task of finding growth in a wildly successful mature company.

It's fair to say Parker has mostly lapped the competition. Nike today is the world leader across multiple athletic-shoe categories, notably running, basketball, and soccer. Its share of the U.S. athletic

Vaulting Over the Bar • NIKE'S STOCK HAS TROUNCED THE MARKET DURING PARKER'S TENURE.



GRAPHIC SOURCE: S&P CAPITAL IQ

UPPERS FOR NIKE FLYKNIT SHOES AT THE COMPANY'S BLUE RIBBON STUDIOS. NIKE SPENT HEAVILY IN TIME AND MONEY TO DEVELOP THE ULTRA-LIGHTWEIGHT TECHNOLOGY, WHICH HAS BECOME A BIG HIT.

shoe market is 62%, according to reports earlier this year. No. 2 Skechers has just 5%. Behind the scenes, Nike is an operations machine known for crisp inventory management and shrewd dealings with retailers. The company is famed for its ability to sell, but increasingly Nike is standing out in its commitment to technology, whether in design, in manufacturing, in marketing, and as we'll see, soon in retailing.

Nike also grows astoundingly fast for a company its size. It has been generating steady annual sales growth of 8.5%, and its $50 billion revenue target implies it can kick that up to 10%, all while fending off Under Armour and Lululemon, which have assumed Nike's former challenger mantle. Nike prints profits too: more than $3 billion in fiscal 2015, nearly 11% of sales.

Parker is something of an oddity in a world of big-ego, headline-grabbing CEOs. Introverts, after all, aren't the norm in the executive suite. But people like Parker and Apple's Tim Cook are showing that reserved types can deliver. Parker's meticulous approach to product development, known as "design thinking," is all the rage, thanks to the acclaim of Apple's products under its famed designer Jony Ive. Parker remains committed to his original craft: He still noodles on two limited-run sneaker lines with famed Nike designer Tinker Hatfield, one of them with Nike spokes-icon Michael Jordan and the other with Japanese stylemaker Hiroshi Fujiwara.

Nike's performance, like a seasoned champion that continues to steamroll the competition, has prompted *Fortune* to name Parker its Businessperson of the Year for 2015. Given that students of management are always looking for role models, it's also a good excuse to investigate what makes Parker tick. After all, he is the rare successor of a celebrated founder who has taken his company to new heights. It is time, as Phil Knight tersely observed, to discover how Mark Parker does it.

"I'm inspired by visual stimulation," says Parker. He is sitting ramrod straight on a couch in his art-strewn office in the John McEnroe Building on Nike's 394-acre corporate complex, a five-minute walk from Knight's office in the Mia Hamm Building. There is plenty for Parker to be visually stimulated by here. Indeed, the eclectic profusion of the lowbrow (and plenty of higher-brow) art Parker collects is overwhelming. There are busts of Abraham Lincoln, scores of miniature Nike sneakers, sculptures by the renowned Brooklyn artist Dustin Yellin, a couple of Warhols, and coffee-table books about art and Nike. It's all a bit much, even for Parker—or at least his wife. "Things wind up here that my wife doesn't want at home," he says. "I've got to have a little purge."

Parker, who is 6-foot-4 and still distance-runner lean, wears an untucked deep-blue dress shirt, pressed jeans, and black sneakers of his own design. He sports a scruffy, salt-and-pepper beard and speaks in a slightly quizzical tone, as if he's not completely certain how the words will sound. Parker equates his managerial style with being an editor, with his process focused on helping subordinates hone their ideas. He even edits himself. At one point he halts after beginning a sentence with the word "honestly" and continues: "I don't like when I say 'honestly'—not to imply that I'm otherwise not honest." It's the sign of an analytical mind; Parker is commenting on, and honing, his thoughts even as he expresses them.

MANNEQUINS INSIDE NIKE'S SEWING STUDIO AWAIT DESIGNERS' LATEST APPAREL IDEAS.

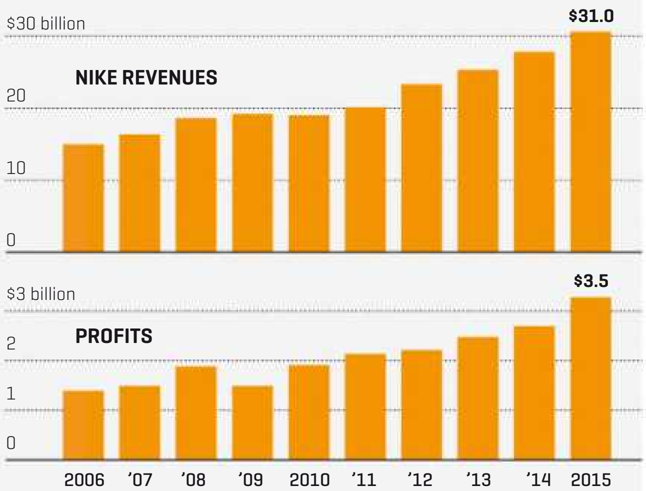
Editing, in fact, is a constant process for Nike, and Parker's impulse-control struggle with art collecting suggests it's hard to balance that with Nike's seemingly all-encompassing ambitions for global domination. Through its pan-sport Nike and basketball-focused Jordan brands and to a lesser extent its Converse and Hurley sportswear labels, the company wants to be all things to all people engaged in any athletic activity, including spectating. Moreover, its strongest products beget its next products. Like Google with its search-ads business and Apple with its iPhones, Nike is blessed with a handful of cash cows—basketball shoes being the most obvious—that fund its explorations.

Parker, as it happens, had a hand in several of Nike's greatest shoes, including as part of the Air Jordan development team. A few years later he got his name (alongside that of Air Jordan designer Hatfield) on a patent for his role in creating the technology behind "Visible Air," which lets athletes see their shoe's cushioning.

Despite his design credentials, Parker moved into the management ranks and proved highly successful. He headed global footwear, then became co-president of the Nike brand. He shared the latter job with a sales executive, Charlie Denson, and the two formed a classic Mr. Inside/Mr. Outside duo, with the quiet designer in the former role. Parker wasn't wholly internally focused, though, and as a lifer with serious product cred he excelled at spinning Nike's narrative as a personal-achievement crusade and not merely that of a shoe peddler. Says David Stern, commissioner emeritus of the NBA, who once appeared on a panel with Parker at the World Economic Forum in Davos, Switzerland: "He understands the potential for a great brand to have an impact far beyond the verticals in which it sells goods."

COMPANY SNAPSHOT

Hurtling Upward ▪ PROFITS AND REVENUES HAVE DOUBLED UNDER PARKER.



FISCAL YEAR ENDING IN MAY OF EACH YEAR

GRAPHIC SOURCE: S&P CAPITAL IQ

When Knight decided to retire in 2004, he was excited by the notion of bringing in the fresh view of an outsider. He hired an executive from the Midwestern consumer products company S.C. Johnson, William Perez, passing over Parker. It wasn't a good fit, and barely a year later Perez was out and Parker was in. (Denson became sole head of the Nike brand under Parker and retired last year, after 34 years with Nike.)

It turns out an insider has a huge advantage running Nike, a "matrixed" organization where playing nice across organizations is required. "Those who are not at Nike would look at the matrix and say, 'I need control,'" says Jan Singer, a former head of global footwear at Nike and now CEO of women's apparel maker Spanx. "You often have more than one boss, and even if you don't, you have multiple stakeholders."

As Nike's boss, Parker is relentlessly inquisitive. "Mark's questions are often either leading or directive," says Andy Campion, Nike's chief financial officer and a former Disney executive. "What's fascinating about his use of questions is that it leaves other leaders empowered to find the answers themselves and act on them." Parker has a penchant, as well, for managing by aphorism. Spanx's Singer recalls him waxing sagacious on the question of talent management by comparing someone on Singer's team to an oak tree. "He told me, 'Trying to turn it into a pine tree isn't going to help anyone. But making it into the best oak tree possible is the goal.'"

Nurturing the whole Nike forest is Parker's remit. "We are complex," he says. "We're in 190-ish countries around the world, 13 sport categories. When you add it all up, we're really talking billions of product units. It's a big, fast-paced, complex business to run. So you have to always keep boiling it down to what's really most important in terms of really moving this business forward, but with the consumer ultimately in mind first and foremost. And that helps us to edit."

Nike IS THE KIND OF COMPANY where executives will unabashedly work the corporate mission statement into regular conversation. The effect is something like actors in a musical suddenly breaking out into song: You know you're witnessing a rehearsed performance, but it's an effective one. "Eager Beavertons," as prominent sports-industry newsletter writer John Horan calls them, abound among Nike employees. Their mission statement is catchy, and it has a clever twist: "To bring inspiration and innovation to every athlete in the world." Nike places an asterisk next to the word "athlete." That's a quote from the great University of Oregon running coach Bill Bowerman, whom Phil Knight recruited to start the company: "If you have a body, you are an athlete."

How Nike segments and serves those athletes is part of what it considers its edge. Through an approach it calls "category offense," Nike divides the world into sporting endeavors as well as geographies, the theory being that, say, golf lovers share more traits than do residents of neighboring countries. According to the company, Nike sales have risen 70% since the company shifted to that philosophy in 2008. By emphasizing categories over regions, Nike ends up winning the geographies it most wants anyway.

Nike pays methodical attention to how its sells its products. Jeanne Jackson, president of product and merchandising, describes an analysis Nike did of the Stratford Westfield Mall in England, which has 14 retailers, including a Nike store, selling Nike branded merchandise. Nike reckoned that too many retailers were selling duplicate products—a classic editing opportunity. For example, it will allocate skating apparel to a store that's

SOME OF THE FABRICS THAT NIKE DESIGNERS CAN WORK WITH AT THE BLUE RIBBON STUDIO

strong in skating but withhold basketball shoes from that shop. Nike has used this approach already in North America and China, Jackson says, and based on its experiences it expects to increase Nike's sales in the English mall by nearly 20%.

There's an old industry line about Nike's selling acumen:

Question: What happens when you cut open a Nike shoe?

Answer: All the marketing falls out.

Nike uses its size—and a marketing budget of 10% of sales, bigger than most of its competitors' revenues—to muscle its ways into new markets. For example, "global football" (soccer, in American English), is a category Nike has pursued everywhere, primarily by paying top dollar (and euro and pounds sterling and so on) to sponsor the most important national and professional clubs. It's working. At its October meeting with analysts, for example, Jackson noted that Nike had become No. 1 in global football, "even in Germany," a bald swipe at longtime leader Adidas.

But Nike is not purely a marketing operation. It also spends heavily on footwear technology, a point of pride for Parker. "We've two-exed our innovation investment surgically, to focus on what matters," he says. Because Nike can spend for the long haul, its innovation investments are real, and new technologies represent another facet of its segmentation. It spent years, for example, developing Flyknit, a lightweight, seamless sneaker. "Flyknit was priced high and was slow to get going," says Christopher Svezia, an analyst with brokerage Susquehanna Financial Group. "But it was great technology. Three years later it's a billion-dollar business with lower price points. Other companies might have just sat on it and tried to figure out something else."

That's the easy-to-express, hard-to-execute nub of Nike's formula: Consistently come up with new ideas, then market full-out. Having institutionalized the process for innovating, the company has a long list of growth opportunities. It has all but promised, for example, that it will debut an entirely new shoe for the 2016 Rio Olympics, just as it launched its Flyknit technology at the 2012 Games in Beijing. Nike has identified its women's category as ripe for growth: Women's shoes and apparel account for only 20% of revenue. Noting that the Jordan brand is overwhelmingly U.S., male, and related to basketball, the company thinks it can expand beyond all three. It recently dispatched Michael Jordan himself to China to celebrate the brand's 30th anniversary and raise its profile.

Nike even thinks that having replaced Adidas by paying $1 billion to slap its swoosh on all NBA jerseys for eight years will lead to new Nike-powered technological advances. "I've talked with commissioner Adam Silver about our role enriching the fan experience," Parker told investors in October. "What can we do to digitally connect the fan to the action they see on the court? How can we learn more about the athlete, real-time? I think sitting courtside might feel a lot different in years to come."

Technology

IS A DIFFERENTIATOR for Nike. In October the company announced that it is working with the Silicon Valley contract manufacturer Flex (formerly called Flextronics), which is better known for making electronics, medical, and automotive devices. It's a significant move because Nike plans to infuse Flex's high-tech expertise with its apparel factory partners in Asia. (The companies first became aware of each other because Flex manufactured Nike's doomed FuelBand fitness tracker.) The shoemaker also plans to open the 125,000-square-foot Nike Advanced Product Creation Center at its headquarters, where it will work with partners like Flex on techniques such as 3D printing, next-generation knitting technologies, and new methods for automation.

Nearly four years ago *Fortune* described a tectonic digital shift at the company, calling it "the biggest change in Beaverton since the creation of 'Just

do it.'" Nike had slashed its print and TV advertising spending by 40% and shifted that money—and more—to digital marketing. A key part of the shift was using the new means to reach consumers directly.

Today "digital" is a catchall term that represents one of the company's biggest opportunities. It vows to grow digital revenue—primarily Nike.com—to $7 billion in 2020, up from $1 billion this year. Such an expansion of what it calls its "direct-to-consumer" business, which includes its retail stores, is potentially revolutionary for Nike. The company is making noises about expanding a nascent program to personalize shoes for individual consumers. In theory Nike could use its physical stores to fit feet and then record the files digitally for repeat purchases on Nike.com. "Digital is almost taking us back to our roots," says Andy Campion, Nike's CFO, a nod to the days when Knight and Bowerman peddled sneakers to runners out of the trunk of Knight's car.

Upside for Nike isn't necessarily a boon for all its partners. Direct sales represent an existential threat to Nike's vast network of retail relationships. A sevenfold expansion of digital revenue doesn't bode well for stores that rely on Nike's favor for their allocations of hot sneakers. Indeed, Nike is such a dominant wholesaler that its key partners can only hope the rising tide lifts its boat too. As an example, Nike accounted for 73% of Foot Locker's sales last year, certainly a blessing and a curse for the retailer. "I think of it as a blessing," says Dick Johnson, Foot Locker's CEO. "They are the best in the business. We've invested with Nike to create premium retail destinations like House of Hoops, the Nike Fly Zone, and Jordan Flight 23."

Nike dominates, but it isn't immune to competition. Its chief antagonist is Under Armour, a smaller (2014 sales were $3 billion) but pesky rival. Under Armour has scored big with athletic apparel and has had good luck too, signing up-and-coming stars like Stephen Curry of the Golden State Warriors and golfer Jordan Spieth just before each became champions. Nike's own list of sponsored athletes features megastars for whom one name suffices, including LeBron, Kobe, Cristiano, Serena, and Roger.

Parker is said to have a fiercely competitive streak. Yet getting him to discuss any competitor by name is futile. "We're totally focused on what we can do," he says, declining to swing at a softball offer to opine on how Under Armour affects Nike. "We like a good fight" is about the most he will give up on the subject, adding, "I learn a lot from all our competitors."

Mark PARKER WEARS a black stainless-steel Apple Watch, on one wrist and a Nike FuelBand fitness tracker, which the company discontinued last year, on the other. He isn't enthusiastic about either. "A good first step" he calls Apple's product, misidentifying it as an iWatch. (This might displease Apple CEO Cook, a 10-year member of Nike's board and chairman of its compensation committee.) As for Nike's own wearable, Parker says he decided it wasn't a core product. "Our presence is going to be an experience that is on a wearable like a watch," he says, noting that for now Nike will keep integrating with tracker products from Apple, Google, Samsung, TomTom, and others. It also continues to support the FuelBand. (Call it corporate editing or realism, but Parker has also shown a willingness to shed acquisitions—such as Bauer Hockey, Cole Haan, and Umbro—that didn't pan out.)

Nike's board recently acknowledged the success of Parker, who turned 60 in October, with a $30 million bonus in return for staying on five more years. For his own part, Parker celebrated his birthday by presenting Michael J. Fox with a pair of real self-lacing sneakers, just like the fictional pair Fox's character, Marty McFly, wore in the film *Back to the Future* 30 years ago.

Parker shows few signs of slowing down. Earlier in the year Phil Knight created a company, Swoosh Inc., to hold his $22 billion stake in Nike, and he named Parker one of Swoosh's directors. (Nike also named Knight's 41-year-old son, Travis, a film animator, to its board.) Parker says he still runs, but only recreationally. His current fitness regimen also includes hiking, walking, weightlifting, and spinning. "My wife is a spin instructor, so she kicks my ass," he says. "She used to be a world-record holder in the 5,000 meters. We walk every night. She's two steps ahead of me."

And just as Knight is pleased that Parker has finally been discovered, Parker is on an endless quest to discover other creative talent. "When I travel I connect with creative people in all different fields and disciplines," he says. "It's sort of just to keep my finger on the pulse of what's going on. I think that's important. I tend to gravitate toward people who are a bit more eccentric and creative and artistic in some ways. And I like bringing disparate kinds of creative people together to create some great work, even to share points of view on a new direction."

Another of Parker's inspirational management aphorisms, this one a sports metaphor, is that "at Nike, there is no finish line." Perhaps not, but it would feel mighty sweet to break through the banner of his $50 billion revenue goal. Till then, there will be many miles to run till Parker can sleep.

FEEDBACK *adam_lashinsky@fortune.com*

Top People in Business

Concrete results. They're what drive *Fortune*'s annual ranking of corporate chieftains. Of course, intangibles and inspiration matter. But what counts most for companies is the ability to generate cold, hard cash. What follows is an assemblage of superstars who navigated the inevitable turmoil this year and led their companies to stellar and, yes, concrete results.

By SCOTT CENDROWSKI, SCOTT DECARLO, PETER ELKIND, ERIKA FRY, VIVIAN GIANG, ERIN GRIFFITH, STACEY HIGGINBOTHAM, BETH KOWITT, ADAM LASHINSKY, MICHAL LEV-RAM, DANIEL ROBERTS, *and* PHIL WAHBA

1.

Mark Parker

CEO, NIKE
[SEE PAGE 94]

TYPOGRAPHY BY **MARIUS ROOSENDAAL**

MICHAEL KOVAC—GETTY IMAGES FOR VANITY FAIR

MARK ZUCKERBERG

CEO, Facebook

IT'S HARD TO OVERSTATE Facebook's dominance on the social web. Its namesake product has 1.5 billion monthly users; its subsidiaries WhatsApp, Messenger, and Instagram reach a respective 900 million, 700 million, and 400 million people each month. Remember how people once scoffed at Facebook's chances of turning a profit? It's safe to say Zuckerberg has answered that challenge: Facebook had \$2.9 billion in earnings in 2014. The company accounts for one of every five minutes Americans spend on mobile phones, a fact not lost on the advertisers plowing increasingly large sums into its highly targeted ad products. The result? Operating margins exceeding 25% and year-over-year revenue growth above 40%.

ZUCKERBERG'S COMPANY NOW CAPTURES ONE OF EVERY FIVE MINUTES AMERICANS SPEND ON MOBILE PHONES.

WILSON'S CONSOLE-ATION: RECORD SALES AND PROFITS

3

ANDREW WILSON

CEO, Electronic Arts

ELECTRONIC ARTS was left for dead a few years ago, amid proclamations that companies that design games for consoles were toast. The company endured four years of brutal losses—a total of $2.5 billion—before stabilizing. Wilson took over in September 2013 and sought to unify the struggling company around what he calls a "player-first culture": rigorous in quality but agnostic as to platform (in many cases combining elements of more than one). Sales of EA's core console games have come roaring back even as the company ramps up digital sales. After its years in blood red, in 2014 EA racked up $875 million in earnings, according to data from S&P Capital IQ. Profits are still humming, and another stellar potential hit looms: EA is about to release its new *Star Wars Battlefront* game.

4. Tim Cook • CEO, APPLE

Cook has successfully navigated the transition to the post–Steve Jobs era, gradually changing the company's culture, refocusing its social mission, and even earning praise for the first new-from-scratch product launch (the Apple Watch) of his time. The latest iPhones set yet another first-week record, and their sales—including boffo numbers in China (an overall 84% surge in the Middle Kingdom)—spurred 31% profit growth in the most recent quarter. Under Cook, Apple has debuted services such as Apple Pay and Apple Music. The cumulative result: an eye-popping $53 billion in profits in the past 12 months.

COOK ILLUSTRATION BASED ON PHOTOGRAPH BY JOE PUGLIESE

PHOTOGRAPH BY BENJAMIN RASMUSSEN

5. AJAY BANGA

CEO, MASTERCARD

Fortune once described companies like Square as harbingers of the new cashless society. Well, Square may have been the harbinger, but MasterCard is the one cashing in. Under Banga, MasterCard has doubled profits and revenue in five years, and he has been aggressively acquiring companies to build its technological edge. Says Barclays analyst Darrin Peller: "In the long term it's going to set them up to succeed technologically. He's got the energy to get things done faster than his competitors." This year Banga signed a 10-year deal that locks in almost all Citi cards as MasterCards and a similar 20-year deal with Itaú Unibanco in Brazil. Shares are up 40% in the past two years as MasterCard swipes its way toward $10 billion in revenue.

BANGA: JEFF CHIU—AP PHOTO; DILLON: BRIAN CASELLA—TNS/ZUMAWIRE/CORBIS; LEI JUN ILLUSTRATION BASED ON PHOTOGRAPH BY CHINAFOTOPRESS—GETTY IMAGES

6 MARY DILLON

CEO, Ulta Beauty

Ulta Beauty is a workhorse in the glamour business. It has found the magic formula for the increasingly crowded beauty arena, offering products across the price spectrum, providing salon services, and operating stores in strip malls close to consumers. This strategy has helped Ulta report some of the strongest numbers in retail and withstand the ambitious makeovers that giants like Target, Walgreens, and Kohl's are giving their beauty sections: Ulta's comparable sales in the first half of the year rose 10.1%.

Mary Dillon, CEO for two years, is wisely spending to bolster Ulta's e-commerce backbone and its stores while still managing to boost the company's operating income as a percentage of sales. Ulta plans to add several hundred stores by 2019 to reach 1,200 locations. Meanwhile, the company has generated a 42% stock increase over the past 12 months, roughly 38 percentage points better than the S&P 500.

7. Lei Jun

CEO, XIAOMI

Until Uber passed it in July, Xiaomi was the world's most highly valued startup, at $46 billion. Wait—a Chinese smartphone company worth what? Lei Jun and Xiaomi have spent the better part of this year explaining why that optimism is justified. It's about more than just phones. The company has so far invested in a couple dozen device companies—with plans to fund at least 100—selling air purifiers, GoPro-like cameras, and hi-fi headphones in a bid to create an ecosystem that will replicate the success of Apple's universe. Xiaomi's backers say it makes money selling phones. But Xiaomi is trying to prove to skeptics that it can do much more.

PORTRAIT ILLUSTRATIONS BY LOOSE GERMS

8

TRAVIS KALANICK

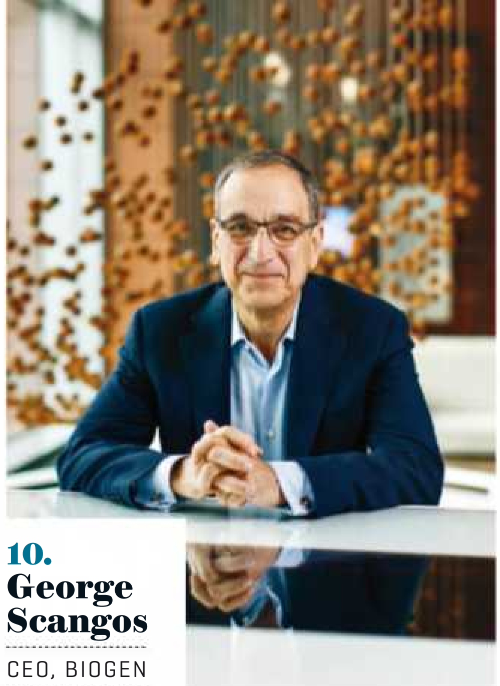
CEO, Uber

IF WE WERE awarding the Businessperson of the Year crown based solely on disruption, money raising, valuation (reportedly now flirting with $70 billion), and all the intangibles that make Kalanick a blazing—albeit controversial—sun in the business universe, he'd be the easy winner for his car-hailing company and its major role in creating the sharing economy. Those qualities are enough to vault him into the top 10, but the company's youth and acknowledged lack of profits (not to mention a reported annual burn rate of $750 million and opposition to the company massing in a number of cities around the globe) prevent him from reaching the pinnacle—for now.

9. STEVE ELLS AND MONTGOMERY MORAN

CO-CEOS, CHIPOTLE

Chipotle's co-CEOs don't just serve burritos; they've also altered what was long seen as an immutable equation: fast food = junk food. No longer. Chipotle has inspired a generation of "natural" quick-serve restaurants and forced behemoths like McDonald's to rethink their practices. In 2015 Ells and Moran swore off GMO ingredients and suspended a pork supplier for violating its animal-welfare standards. The ensuing *carnitas* shortage only improved the company's image. Chipotle continues to beef up revenues and earnings, even fattening its margins as it expands. Still, the fiesta can't continue indefinitely; same-store sales growth is slowing, and an *E. coli* outbreak in the Northwest could drive away some customers. Their recipe to stay hot: Invest in delivery and mobile ordering and expand the company's nascent ShopHouse and Pizzeria Locale chains.



10. George Scangos

CEO, BIOGEN

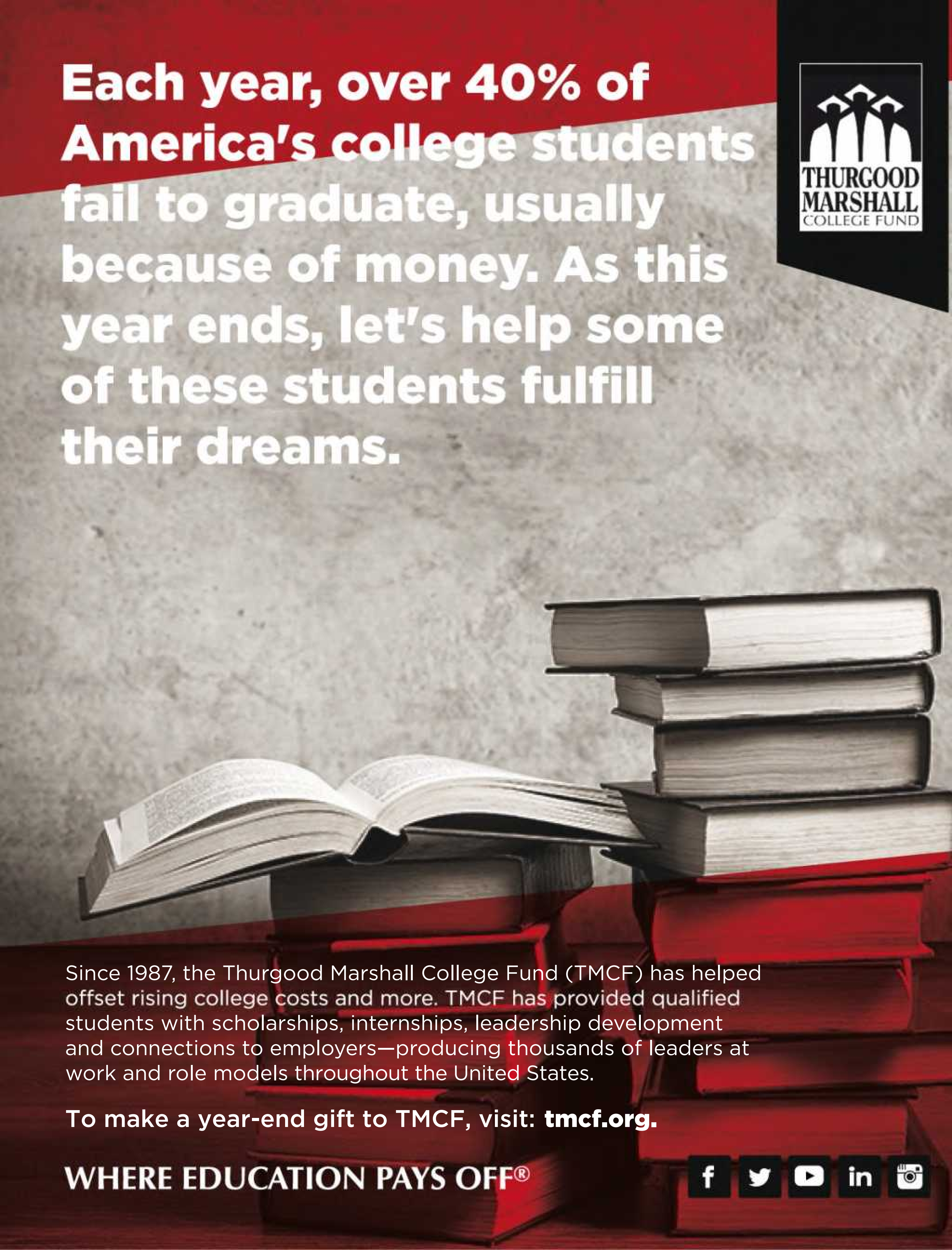
Since joining Biogen as CEO in 2010, Scangos has taken a highly profitable company, more than doubled its revenue, and more than tripled its earnings. And he has done so while upping the R&D budget 52% between 2010 and 2014. Today, Biogen seems afflicted with the curse of high expectations. Investors are apparently disappointed with projected sales and earnings growth of, respectively, 9% and 19% this year. In part because of that, Biogen wasn't immune to this year's plague in biotech stocks (worsened by lower-than-expected demand for its multiple sclerosis drug Tecfidera). Scangos's remedy: He's bolstering marketing and narrowing focus to a few research areas, while cutting 11% of Biogen's workforce. Will that cure the ailing stock price? Perhaps not. But if profit growth of 19% is considered anemic, most CEOs would happily accept the condition.

11. LARRY PAGE

CEO, ALPHABET

***Fortune*'s 2014** Businessperson of the Year electrified the business world with far-out "moon shots" like self-driving cars, balloons that provide Internet connections, and life-extending science. This year, Page signaled that he intends to make those side projects into real businesses, reorganizing Google into a holding company called Alphabet. It will be years before the "Other Bets" segment turns a profit, but until then investors can take comfort in the healthy operating margins—26% on average this year—of Google's advertising business. Revenue grew 20% annually for the past three years, with profits ascending at a comparable rate, even amid aggressive competition for mobile ad budgets from the likes of Facebook.

KALANICK: DAVID PAUL MORRIS—GETTY IMAGES; ILLUSTRATION OF MORAN AND ELLS BASED ON PHOTOGRAPH BY JASON KEMPIN—GETTY IMAGES FOR CHIPOTLE MEXICAN GRILL; SCANGOS: BOB O'CONNOR; PAGE: CHRISTOPH DERNBACH—PICTURE ALLIANCE/DPA/AP PHOTO


Each year, over 40% of America's college students fail to graduate, usually because of money. As this year ends, let's help some of these students fulfill their dreams.
THURGOOD MARSHALL COLLEGE FUND
Since 1987, the Thurgood Marshall College Fund (TMCF) has helped offset rising college costs and more. TMCF has provided qualified students with scholarships, internships, leadership development and connections to employers—producing thousands of leaders at work and role models throughout the United States.
To make a year-end gift to TMCF, visit: tmcf.org.
WHERE EDUCATION PAYS OFF®

12. Howard Schultz

CEO, STARBUCKS

If you want to see the future of retail, look no further than Starbucks. Under Schultz, it is becoming as much a tech behemoth as it is a coffee giant. He has made big hires from Adobe Systems and Juniper Networks and is leading the industry with its integrated rewards program and mobile ordering and payment; a fifth of the company's U.S. transactions now take place on mobile. Cracking the code on delivery is next. The transformation is paying off. Starbucks has enjoyed 23 consecutive quarters of same-store-sales growth of 5% or more, along with record revenue and operating income and a market cap approaching $100 billion. Schultz has defied critics by proving that the company has yet to reach its saturation point; he increased store traffic and built new locations that are brewing up scalding sales in their first year. His "Race Together" initiative fell flat, but the damage was brief: Schultz's name was floated as a possible presidential candidate.

13 ROBERT IGER

CEO, Disney

F*ROZEN* WARMED DISNEY'S bottom line considerably in 2014, but profits have continued to rise with movies such as *Avengers: Age of Ultron* from Marvel Studios (a canny Iger acquisition) and *Inside Out* from Pixar (an earlier masterstroke purchase by Iger).

Yet another of his bold pickups, Lucasfilm, will soon release one of the most highly anticipated flicks in years, *Star Wars: The Force Awakens*. Already the film is driving strong merchandise sales (demand for presale tickets even caused websites like fandango.com to crash). Despite a modest revenue miss in its most recent quarter and concern about softness at ESPN, the Star Wars sequel suggests the curtains aren't coming down on the company's blockbusters just yet.

14. MORRIS CHANG

CHAIRMAN, TAIWAN SEMICONDUCTOR

The world's largest contract manufacturer for chips, Taiwan Semiconductor has been managing an impressive feat under founder Chang: spending big on R&D and still managing healthy (35%) net income margins. The formula has led to 60% cumulative revenue and earnings growth over the past three years. The company's mobile business has stood out as it secured a contract to produce some A9 chips for Apple's iPhone. Still, the outlook for 2016 is sobering, and Taiwan Semiconductor will have to fend off the likes of Samsung to compete to make the next-generation A10 chip. But its breadth of customers—Qualcomm, Nvidia, Broadcom, AMD, and many others—should help it defend its position.

15. BERNARD ARNAULT

CEO, LVMH

Who could object to a crackdown on graft in China? The sellers of luxury items—often given as gifts to officials—that's who. Still, LVMH has weathered the crackdown thanks to Arnault's global diversification. Sales of alcohol, perfume, and watches have gleamed, offsetting weakness at its fashion business, which includes Louis Vuitton. Don't underestimate LVMH's

SCHULTZ ILLUSTRATION BASED ON PHOTOGRAPH BY ANDREW BURTON—GETTY IMAGES; IGER: WESLEY MANN; CHANG: BILLY H. C. KWOK—GETTY IMAGES; ARNAULT: GUILLAUME SOUVANT—AFP/GETTY IMAGES

discipline: It boasts profit margins roughly twice those of rival Kering. So even as LVMH's revenue has leveled off around $37 billion in the past three years, profits have climbed 50%, from $4.5 billion to $6.8 billion.

16. FRANCISCO D'SOUZA

CEO, COGNIZANT

No other company has appeared more times on *Fortune*'s list of Fastest-Growing Companies than Cognizant. Revenue exploded by a factor of 20 and profits by a factor of 15 over the past decade at this infotech outsourcer and consultancy.

D'Souza is the company's youthful (47) and dynamic chief. The son of an Indian diplomat, he taught himself programming in high school, joined Cognizant in 1994, and has been CEO since 2007. Financial services is the company's stalwart sector, but D'Souza has kept Cognizant on the cutting edge not only with digital services, analytics, and cloud services but also by expanding its health care segment with organic revenue growth (16% last year) and its biggest acquisition to date (a health care IT-services provider called TriZetto). The ascent isn't over either: The company says it's on track for sales growth of 20.1% in 2015.

17 BARBARA RENTLER

CEO, Ross Stores

BARBARA RENTLER HAS had the unenviable task of competing with TJX, one of retail's fastest-growing stories for years. But on her watch, Ross is more than holding its own: Comparable sales rose 5% in the first half of 2015 as the off-price retailer has continued to win over bargain-hunting department-store shoppers for whom T.J. Maxx is still a bit too pricey. And its gross margin has grown despite stiffening competition thanks to hyperefficient buying processes she has overseen. Rentler's strategy has been to choose markets she can win and fill those in with Ross stores, rather than dot the U.S. map with stores. Rentler thinks there is room to double store count to 2,500. There is plenty of untouched territory: Ross has no stores in New England or New York yet. Rentler will get there.

18. Ma Mingzhe

CHAIRMAN, PING AN

What Chinese slowdown? Ping An, the country's life insurance giant, recorded a 32% quarterly profit increase for the third quarter (vs. the year earlier). Founder Ma has adroitly harnessed the rise of the Chinese middle class. Ping An's results have been superb as it diversifies into banking and finance, including what the company says are now 145 million "Internet finance" customers. Twelve-month revenues—$105 billion, according to S&P Capital IQ—were more than triple the company's total in 2010, and profits ($8.8 billion) nearly doubled the figure for 2013.

19. DAVID ALDRICH

CEO, SKYWORKS

Earlier this year, when CNBC's Jim Cramer noted that Skyworks's chips are in just about every major provider's cellphones, Aldrich corrected the *Mad Money* host. "No," he said, "we're in *everybody*." That means its radio chips are in everything from thermostats to routers for customers including Cisco, Dell, GE, Google, Huawei, and LG. Biggest of all: Apple's iPhone accounts for 36% of sales, according to analyst estimates. No surprise, Skyworks's numbers have been soaring skyward.

20. WESLEY BATISTA

CEO, JBS

If you had to guess the world's biggest meat seller, you'd be hard-pressed to think of JBS. But this 62-year-old family-run Brazilian company has been on an acquisition rampage for more than a decade: Swift, Pilgrim's Pride, and units of Smithfield, Tyson, and Cargill have disappeared into its maw. No surprise: JBS's sales have risen nearly 30-fold over a decade. JBS is still digesting a lot of debt but is improving its margins. Its shares are up 40% over 12 months even as Brazil's index has slumped by 20%. F

Methodology ▪ HOW WE SELECTED THE LIST

TO COMPILE THIS YEAR'S Businessperson of the Year list, we weighed 10 metrics. Financial results, including 12-month and 36-month increases in profits and revenue, formed the backbone of our analysis. (We wanted to identify companies that shone in the past year but eliminate any flashes in the pan who had a single good year after a slump.) We also weighed each company's stock performance and total shareholder returns over the same periods and factored in each's ratio of debt to capital. Nonfinancial elements, like business influence, leadership style, and strategic initiatives, played a part in our evaluation as well.

D'SOUZA: CYRUS MCCRIMMON—THE DENVER POST/GETTY IMAGES; ALDRICH: COURTESY OF SKYWORKS; BATISTA: PAULO WHITAKER—REUTERS/CORBIS; MA MINGZHE: CHINAFOTOPRESS—GETTY IMAGES

Uncle Sam's $130 Billion Money Grab

By Roger Parloff

A sudden government rule change wiped out shareholders in Fannie Mae and Freddie Mac, just as it seemed they were headed for recovery. Now some investors are hoping that apparent injustice will lead to a mammoth payday.

MOST STORIES ABOUT the financial crisis of 2008, the darkest chapter in American economic history since the Great Depression, come to an end by 2012. That's when ours begins. ¶ After the housing market bottomed out in 2011 and began its upward trajectory, the nightmare seemed to end. For business it was morning in America again. Most of the too-big-to-fail institutions had either paid back their federal bailout money or were on track to do so. Stocks climbed and stockholders rejoiced.

That was the basic story arc for such titans as J.P. Morgan Chase and Wells Fargo (recipients of $25 billion each in taxpayer largesse), for instance, and for Citigroup and Bank of America ($45 billion each), and even for the derivative-plagued insurance giant AIG ($182 billion).

Shareholders of Fannie Mae and Freddie Mac, the housing-finance behemoths at ground

ILLUSTRATION BY ALESSANDRO GOTTARDO

zero of the crisis, thought it would be their story line too. Fannie and Freddie, shorthand for the Federal National Mortgage Association and the Federal Home Loan Mortgage Corp., are known as government-sponsored enterprises, or GSEs, because of their unique structure: federally chartered yet privately owned.

The government had injected $187.5 billion into the GSEs after placing them in conservatorship in September 2008. But both seemed to be recovering on schedule, ending the first quarter of 2012 in the black and posting a whopping combined $8 billion profit for the second.

Yet on Aug. 17, 2012—about 10 days after the terrific second-quarter results were announced—something singular happened. For reasons that remain shrouded in secrecy to this day, the Treasury Department and the companies' conservator, the Federal Housing Finance Agency (FHFA)—two arms of the same government—agreed to radically change the terms of what the GSEs would owe in exchange for the moneys they had already received.

Instead of a 10% annual dividend on all the bailout funds drawn—a dividend that came to $4.7 billion per quarter—the dividend was now to be set at 100% of each GSE's net worth. *One hundred percent.* That is to say, any and all profit they posted. And this would be so in perpetuity. For all practical purposes, the GSEs' shareholders were wiped out. The two firms, on their way back to health, were effectively nationalized.

The sudden change was called the "third amendment," an innocuous-sounding designation that belies its momentous consequences. Just how momentous became clear almost as soon as the third amendment took effect, in January 2013. For within months the GSEs began posting the highest profits in their history. And when they did, all those billions were spirited off to the Treasury.

To date, the third amendment has swept into government coffers $129 billion more than the original 10% dividends would have. As a result, the GSEs have now paid the Treasury about $240 billion in recompense for the $187.5 billion extended to them (or actually $189.5 billion, counting fees that were part of the original deal). While that's not yet a complete "repayment" of principal and interest at 10%, it's getting close.

Or, rather, would be getting close if any of those payments counted as redeeming even a penny of the $189.5 billion principal—but they don't. They're just dividends. The government left no mechanism for Fannie and Freddie to pay back the principal, which is never reduced. So if the GSEs are ever dissolved, the government will still take the first $189.5 billion recovered from liquidation, stepping ahead of the companies' preferred shareholders, who would have otherwise collectively held at least $33 billion in liquidation rights.

If this strikes you as, well, un-American, you're not alone.

"I just don't think there's any precedent for the government nationalizing two privately owned companies in the way that it has," says Chuck Cooper, an attorney representing the Fairholme mutual fund family and a group of insurance companies that own millions of preferred shares of Fannie Mae and Freddie Mac.

So Fairholme is suing the government, as are several other funds, insurance companies, and tens of thousands of individuals in a dozen or so suits now pending in at least five federal courts across the country. The cases allege that the U.S.

Powerhouse Republican attorney Chuck Cooper represents Fairholme Funds in its battle with the government.

PAUL SAKUMA—AP

government illegally or unconstitutionally took, without just compensation, Fannie and Freddie—two *Fortune* 50 companies. (They rank 17 and 42, respectively, on the 2015 *Fortune* 500 list.) The money at stake here—$33 billion worth of preferred shares and almost $130 billion in diverted dividend payments—places these cases among the highest-valued lawsuits in history.

"A conservator has one constant accepted responsibility," says Cooper, of Cooper & Kirk in Washington, D.C., who is handling two of the cases and advising on a third. "That is to rehabilitate the entity under conservatorship. Rehabilitate it. Not to hold it in perpetual captivity to harvest its profits for the benefit of the conservator itself. That's the very antithesis of a conservator."

The government's alleged nationalization of two enormous corporations raises potentially landmark constitutional issues—comparable to President Harry Truman's attempt to nationalize steel mills during the Korean War. Asked to cite an earlier dispute against the government with comparable stakes, Cooper can only come up with the gold-clause cases of the 1930s, when President Franklin Roosevelt and Congress, coping with the exigencies of the Great Depression, abrogated all contractual provisions that permitted redemption of debts in gold. (The Supreme Court largely upheld the action.)

Yet the contest over the third amendment is not just a weighty legal dispute over a sacrosanct constitutional principle—though it is that. It's also a battle royal being waged between fabulously wealthy, opportunistic fund managers and Uncle Sam. That battle, in turn, is spilling over into the political arena, recasting the debate over housing-finance reform—and, as we'll see in a bit, driving a sharp wedge between factions of the conservative base.

The fund managers have become key because, for better or for worse, the third amendment is more than just a colossal legal misstep; it's a colossal investment opportunity. It had the effect of slashing the GSEs' stock valuations to nearly nothing. Judging the amendment to be legally dubious, investors spied an opportunity to vacuum up GSE securities cheap, strike down the amendment in court, and then make a huge profit when the stock rebounded.

So, like sharks to blood, speculators rushed in, complaining about an alleged taking that, in many cases, occurred before they even got there. Cooper's client Fairholme, founded by Bruce Berkowitz, began buying in May 2013, amassing about 120 million shares of Fannie and Freddie preferred—with a par value of $3.4 billion—for roughly $700 million. Bill Ackman's Pershing Square Capital Management hedge fund bought up 10% of both GSEs' common shares in late 2013. Billionaires Carl Icahn and John Paulson are among other marquee hedgies with skin in the game.

The activist fund managers are now trying to drive the policymaking debate in the direction of recapitalizing and restoring Fannie and Freddie to something like their prior positions—"recap and release," they call it—which would, not incidentally, maximize the value of their shares. Their arguments—voiced on CNBC, Bloomberg TV, *Charlie Rose*, op-ed pages, and elsewhere—are plausible, but their conflicts are breathtaking. Under a recap and release scenario, Ackman's projections show, his stake in Fannie and Freddie common stock—acquired for about $400 million—could in five years top $8 billion in value.

A host of public interest groups have also sprung up to support recap and release. While many of these are doubtless independent of the fund managers—Ralph Nader leads one—the opaque disclosure rules relating to nonprofits make it impossible to tell. According to the *Wall Street Journal*, one conservative seniors group, called 60 Plus, came up with $1.6 million in the spring of 2014 to mount a TV ad campaign to defeat senators supporting a bipartisan reform bill that would have dismantled Fannie and Freddie, terming it "Obamacare for the mortgage industry."

"I just don't think there's any precedent for the government nationalizing two privately owned companies in the way it has."

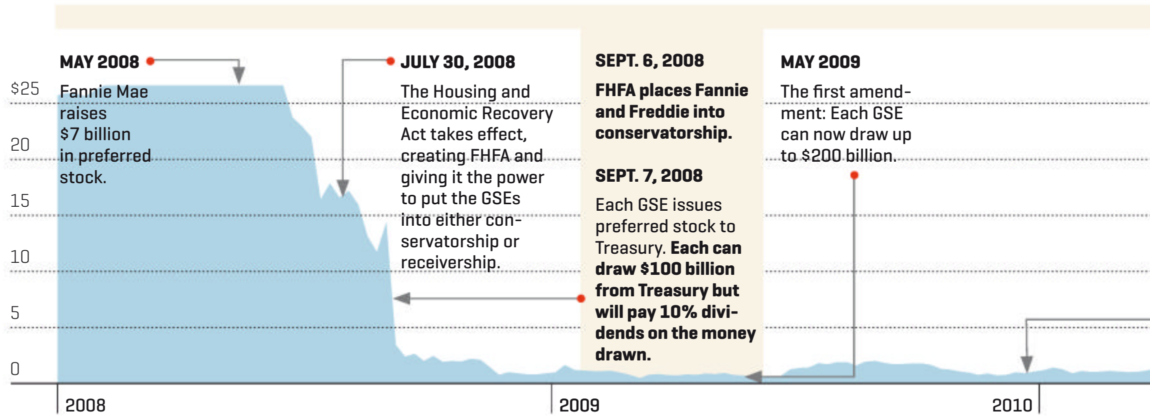
Finally, the third amendment is having one additional weird, unintended impact on the political environment: It's splitting the conservative camp, which had once seemed solidly bent on driving a stake through Fannie's and Freddie's hearts at whatever cost. Cooper himself is emblematic of the anomaly. He's a well-known Republican who has frequently pursued conservative legal causes, from defending bans on same-sex marriage to protecting gun rights. (Senator Ted Cruz, the Texas Republican now running for President, was once an associate in Cooper's office.)

He's also a good friend of Peter Wallison, perhaps the single harshest GSE critic in the nation and the one who has most tirelessly championed the view that Fannie and Freddie were the primary causes of the financial crisis of 2008, not mere enablers of more culpable private-sector banks.

The Path to an Alleged Taking and Beyond

Even after nearly eight years of ups and downs, Fannie and Freddie investors await their payday.

Fannie Mae Series S preferred stock



During the Reagan Administration, Cooper headed the Justice Department's Office of Legal Counsel—acting, as he puts it, as Reagan's chief constitutional lawyer—while Wallison served as Treasury and, later, White House counsel.

But while many conservatives still want Fannie and Freddie put to sleep as quickly as possible—the *Wall Street Journal* editorial board, for instance, has consistently denigrated the third-amendment litigation as frivolous—the front is no longer united. It seems that if there's anything a dyed-in-the-wool conservative hates more than a GSE, it's a government taking of a GSE.

The stakes of the housing-finance policy debate are even greater than those of the lawsuits. Historically, Fannie and Freddie have played a central role in promoting homeownership in this country, the traditional gateway to the middle class. They have promoted liquidity and affordability in the mortgage market by buying mortgages, bundling them into securities, and selling them around the globe with an implicit (now explicit) government guarantee. They have been widely credited with having made possible the 30-year fixed, prepayable mortgage—the foundation of the American mortgage market and a rarity beyond our borders.

The Obama Administration has supported ambitious but complex bipartisan bills, known as Johnson-Crapo and Corker-Warner, that are intended to fix what many saw as inherent failings in the GSEs' hybrid structure—one that privatized gains but socialized losses. The bills would, their sponsors claim, end the GSEs' "duopoly" over the secondary-mortgage market and replace their implicit government guarantees with more limited, explicit ones. But the bills have stalled.

Seven years into their conservatorship, the GSEs remain adrift, with shrinking capital reserves and no exit plan—a dormant, festering crisis.

As a policy matter, Bethany McLean, a former *Fortune* writer whose recent book, *Shaky Ground*, sounds the alarm over Fannie and Freddie's neglected plight, comes down on the side of the fund managers. "One of the investors gave me the analogy that Corker-Warner was like taking the existing highway structure in the U.S., tearing it up, and building a new one right next to it, with no guarantees that the new one was going to work," she says.

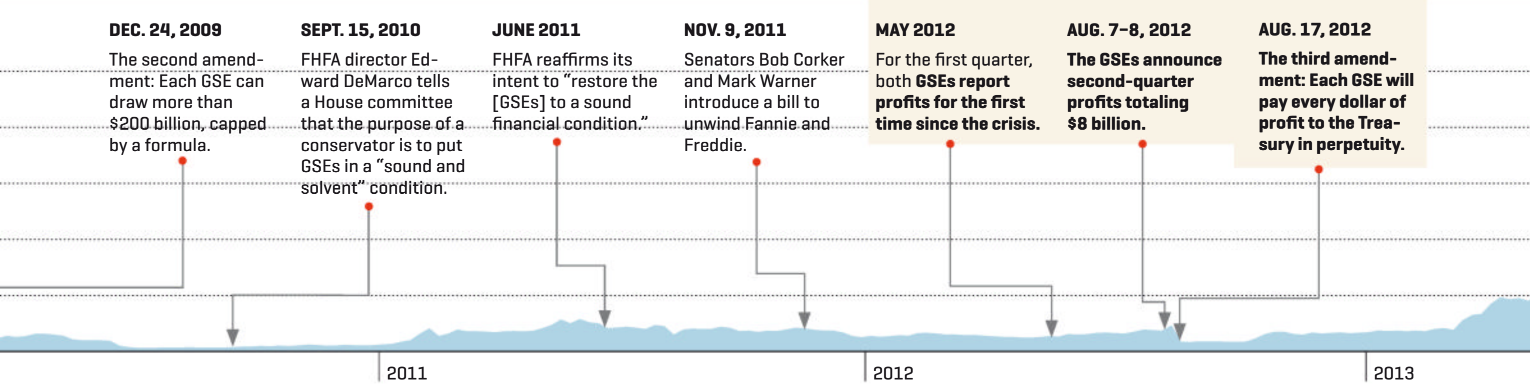
The point is a good one. But what a strange way we've hit upon to make policy in our country. Fund managers identify an investment opportunity, then retroactively construct self-serving arguments for why the nation will be a better place if their bets are allowed to hit the jackpot.

With Congress locked in partisan stalemate, however, it may just be how the sausage gets made.

THE GOVERNMENT JUSTIFICATION for the third amendment hinges on something it calls the "death spiral." That's the term U.S. officials have used in affidavits defending the litigation in court. (Justice Department lawyers and spokespeople for FHFA and the Treasury declined to comment for this article.) In a letter last April to Sen. Charles Grassley, an Iowa Republican, Randall DeValk, an official at Treasury, explained that the GSEs themselves projected that "for the foreseeable future, they would be unable to pay the 10% dividends without taking additional draws." Those new draws would cause them to approach their funding caps, DeValk continued, triggering a new insolvency crisis.

But how could their projections have been so far off, given that Fannie and Freddie were actually about to post their largest profits ever? Those profits, after all, came from one-time accounting adjustments, which should have been foreseeable. By 2013 (and probably earlier than that) it had become obvious that many of the losses the GSEs had incurred during the crisis—the impetus for

GRAPHIC SOURCE: S&P CAPITAL IQ



their having drawn so much money from Treasury in the first place—had been losses on paper only. They had resulted from accountants' overly pessimistic projections, which, under GAAP, became eligible for reversal when the economic picture brightened. It was these reversals that enabled Fannie, for instance, to book $59 billion in profits for the first quarter of 2013.

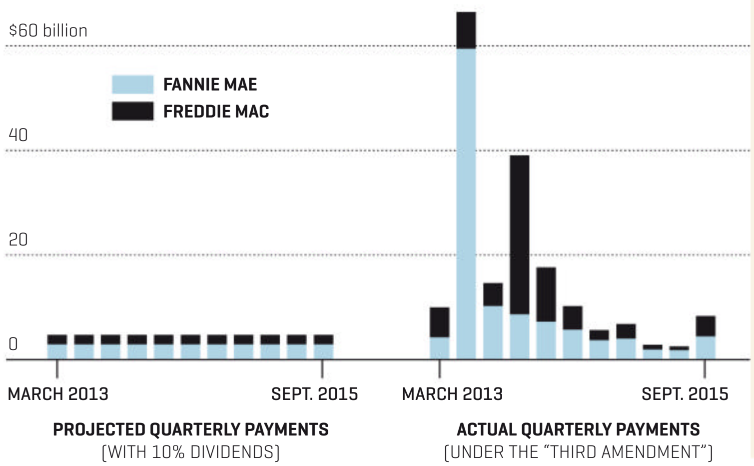
FHFA didn't know that—or so said an agency official in an affidavit submitted in late 2013 in a suit brought by hedge fund Perry Capital.

Cooper doesn't believe FHFA's claim. Documents and depositions from officials at Treasury and FHFA, obtained in discovery in a suit brought by Fairholme Funds, show that the government's story is "highly misleading" in some respects and "outright false" in others, plaintiffs lawyers allege in court briefs.

The lawyers can't tell the media (or even their clients) specifically what the documents and depositions show, however. That's because Court of Federal Claims Judge Margaret Sweeney has ordered those materials sealed from public view, at the government's behest. Bewilderingly, the Justice Department has persuaded her that disclosure of that information—concerning a now three- to eight-year-old decision-making process of tremendous public interest—might cause "dire harm" and "place this nation's financial markets in jeopardy." But the lawyers have won Sweeney's permission to send their discovery finds (still under seal) to all the judges handling related cases, which they've done.

The Government's Windfall

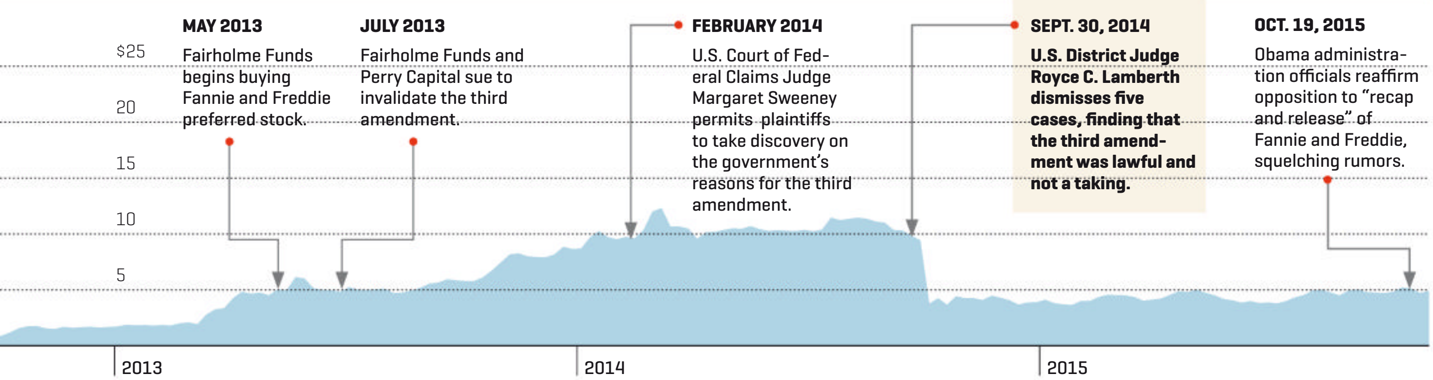
To date, Fannie and Freddie have paid the U.S. Treasury about $240 billion. They borrowed $189.5 billion.



GRAPHIC SOURCE: U.S. COURT OF FEDERAL CLAIMS COMPLAINT

In any case, the government also stresses that it's fundamentally wrong to imagine that the GSEs are anywhere near "paying back" the bailout moneys—or that they ever will be. "Treasury did not make a simple 'loan' to Fannie and Freddie," DeValk argued to Grassley. "It made available hundreds of billions of dollars of funding capacity to ensure market confidence in the continued stability of the enterprises at a time when that stability was very much in doubt ... Treasury and the taxpayers continue to be on the hook for future losses those enterprises may incur. Any private lender would demand substantial compensation for providing that kind of ongoing funding commitment."

In September 2014 the government won an early round in the litigation. U.S. District Court Judge Royce Lamberth, of Washington, D.C., threw out Perry Capital's case and four others, concluding that the conservator had acted within



the broad powers given to him by Congress; that the GSEs were so heavily regulated that their stock wasn't the sort of property that was capable of being "taken" in constitutional terms; and that the conservatorship had already "extinguished" the plaintiffs' property rights in any event.

The suit is now in the U.S. Court of Appeals for the District of Columbia. But with other cases still playing out in the federal court of claims and in federal district courts in Iowa and Kentucky, the litigation seems certain to last for years and destined to reach the Supreme Court.

IN MARCH 2008, when the plummeting housing market caused investment bank Bear Stearns to fail, James Lockhart, Fannie and Freddie's chief regulator, was sending out broad signals of optimism. He eased certain regulatory burdens on the GSEs, enabling them to issue new shares to the public. "The actions we're taking today," Lockhart declared at the time, "make the idea of a bailout nonsense in my mind. The companies are safe and sound, and they will continue to be safe and sound."

Two months later Fannie issued $7.4 billion in preferred stock. About $65,000 worth was purchased by Jim and Pandora Vreeland of Loudon, Tenn. Jim, then 61, had been an officer with the Montville (N.J.) Township Police Department before retirement. In 2008, when his mother died and left him a small inheritance, he went to his Wachovia broker seeking advice, he recounts.

"'I'm looking for something to produce good interest, pretty assured,'" he recalls telling the broker. "'Oh, what you want is preferred shares of Fannie Mae,'" he was told. (At that point Fannie hadn't had an unprofitable year since 1985, and Freddie had never had one.)

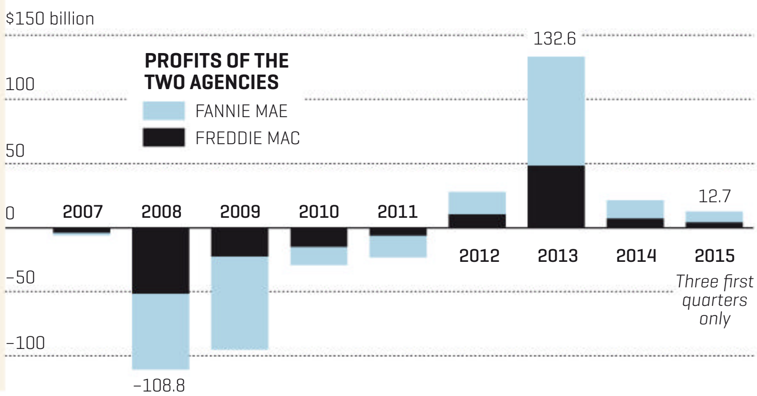
Vreeland bought $40,000 worth, at about $25 per share. At the same time his wife, Pandora, acting as the trustee for her father, who had Alzheimer's, bought $25,000 worth for his trust, banking on the income stream to pay for his nursing-home care.

It wasn't just mom-and-pop investors who were buying Fannie preferred, even at this late stage. GSE securities had long been favored instruments for community banks and insurance companies. They were safe enough to satisfy regulators, explains Chris Cole, a spokesman for the Independent Community Bank Association, and were considered "a good way to diversify and to improve yield."

In July 2008, as the economy continued to deteriorate, Treasury Secretary Hank Paulson asked Congress to give regulators beefed-up bailout powers for Fannie and Freddie. That same month

A Recovery in Progress?

The government commandeered the GSEs just as, some say, their businesses were turning around.



GRAPHIC SOURCE: S&P CAPITAL IQ

Congress passed the Housing and Economic Recovery Act, creating the Federal Housing Finance Agency to oversee the GSEs. Lockhart, who was appointed to head the new agency, got the power to place Fannie and Freddie into either receivership or conservatorship. The roles differ substantially: Receivers liquidate troubled companies; conservators attempt to nurse them back to health and restore them to independence.

Two months later, the week before Lehman Brothers fell, Lockhart put both housing giants into conservatorship. As Lockhart explained that day in a press statement, that statutory process was "designed to stabilize a troubled institution with the objective of returning the entities to normal business operations."

The following day, Sept. 7, 2008, FHFA and Treasury signed deals with the GSEs setting out the terms of the bailout. Each GSE would issue senior preferred stock to the Treasury, and each could then draw cash as needed to avoid insolvency. In exchange, each would owe a 10% dividend on the money drawn, payable quarterly. To further protect the taxpayer, Treasury also got warrants to buy 79.9% of each GSE's common stock at a nominal price—$0.00001 per share. (The percentage was kept below 80%, it has been widely reported, to avoid having to move the GSEs' $5 trillion in assets and liabilities onto the government budget, which would have noticeably increased the national debt.)

Instead of a 10% dividend on the bailout funds drawn, the dividends would be set at 100% of each GSE's entire net worth.

The shareholders' lawyers would later argue that the warrants provision gave private shareholders further reason to believe that the government aimed to eventually recap and release the GSEs. It aligned the interests of private shareholders and taxpayers by giving both a stake in the reinvigorated GSEs. Indeed, if the GSEs returned to health, nobody would benefit more than Uncle Sam. All of this made the third amendment superfluous, if not downright bizarre. "If the government wanted a dividend larger than the 10%," says Hamish Hume, a partner at Boies Schiller & Flexner and a lead lawyer for a class of preferred and common shareholders, "the original deal made it clear what the government should do: exercise its right to acquire 80% of the common." Why steal the cow when you can get the milk for free?

During the conservatorship, the GSEs' shares were allowed to keep trading. Stockholders retained "all rights in the stock's financial worth," according to an FHFA fact sheet, though other powers of stockholders were "suspended" and dividends were "eliminated."

The trading price of the Vreelands' preferred stock had begun falling in July, when Paulson asked for legislation. The first trading day after conservatorship, it tumbled further, from $14 a share to less than $3.50, and by December it was under a dollar. Fannie's dividends—the whole point of the Vreelands' investments—were cut off. Having bought just four months earlier, they received just one dividend before the seizure.

"It was a big loss to a small guy," says Jim in an interview. "That was the money I was supposed to live on."

Still, Jim held out hope. "I was led to believe the government would back this up," he says. "It was a quasi-government agency." If the companies started making money again, he says, he assumed "they'd come back and take care of the people that had invested in this thing."

He wasn't alone. "I read all the documents," says Tim Pagliara, the CEO of CapWealth Advisors in Franklin, Tenn. "I felt like the government's reaction was overblown," he recounts, and that the companies would eventually get back on their feet. The GSEs' preferred stocks—like nearly all bank stocks at the time—were then cheap, so he bought some for himself, he says, and put 276 of his clients into it as well. Eventually some super-sophisticated investors, like Perry Capital, began buying the stock too.

For a couple of years the GSEs booked huge losses. In December 2010, Pandora Vreeland gave up on her father's Fannie preferred, selling it for 56¢ a share, salvaging $520 from a $24,874 investment. But her husband, Jim, held on to his.

In August, FHFA and Treasury lowered the boom, announcing the third amendment. Jim Vreeland's shares dropped 55%, from $2.35 to $1.05, and a day later they were worth 86¢.

"I thought it was a typo," Bruce Berkowitz, the founder and chief investment officer of the Fairholme mutual funds, told journalist McLean of the moment when he first read the third amendment. "This can't be right," he continued, as recounted in *Shaky Ground*. "It's like I took 80% of your house in the financial crisis, because you couldn't pay, and then

you somehow crawled your way back, and instead of saying, 'Wow, you made it!' I say, 'Now I'm going to take 100%.'"

Seeing a golden opportunity, Berkowitz started buying these dirt-cheap Fannie and Freddie preferred shares in May 2013. Other funds were gorging on them too, pushing up the value of the shares. (Thanks to these speculators, Vreeland was able to unload his shares in March 2014 for between $10.40 and $12.70 per share, recovering nearly $18,000 of his $40,000 principal. Of course, his dividends were lost forever.)

Berkowitz then retained Chuck Cooper to try to get the third amendment struck down. In July 2013, he filed two cases for Fairholme, one in federal district court in Washington, D.C., and one in the federal court of claims.

Cooper was the obvious go-to guy for this assignment. His 13-lawyer boutique, based in a stately New Hampshire Avenue townhouse near Dupont Circle, specializes in suing the government, including "takings" cases. (Takings cases are those predicated on the clause of the Fifth Amendment that reads: "nor shall private property be taken for public use, without just compensation.")

It seems if there's anything a dyed-in-the-wool conservative hates more than a GSE, it's a government taking of a GSE.

Cooper, who speaks with a soft Alabama accent and sometimes whips himself into fervors worthy of a jury summation, cut his chops in this realm by winning *United States* v. *Winstar* before the U.S. Supreme Court in 1996. In that case, which arose from the savings-and-loan crisis of the 1980s, healthy thrift institutions had been induced to buy sickly ones with the lure of certain regulatory accounting breaks, only to see those benefits abolished by Congress a few years later.

The legal challenges in the Fannie and Freddie suits come in two main flavors. The true "takings" cases, claiming that Uncle Sam stole billions of dollars from shareholders, seek damages from the U.S. government. The other suits instead seek court orders invalidating the third amendment and reversing its effects. They argue, for instance, that FHFA acted beyond its powers under the Housing and Economic Recovery Act.

Although the takings concept seems to best capture the injustice the plaintiffs feel, those cases may be harder for many to win or be less lucrative. There's some question about whether plaintiffs who bought shares after the third amendment was announced (like Fairholme and Pershing Square) even have the legal right to seek damages for a taking. Also, since GSE shares were already quite cheap by the time of the third amendment—Fannie common was just 30¢ on Aug. 16, 2012, and fell only 6¢ after it was announced—a court might value a taking stingily, even if persuaded that one occurred.

If the plaintiffs succeed in invalidating the third amendment as beyond FHFA's statutory power, on the other hand, many of their lawyers hope to win an order that would force the Treasury to count the nearly $130 billion paid in excess of the 10% dividend as a paydown of bailout principal. That would enable the GSEs to begin to rebuild capital and resume normal business, which would ultimately restore value to their shares.

IN CONGRESS, the struggle over whether and how to replace the GSEs continues. In mid-October top Obama administration officials reiterated their opposition to recap and release, squelching rumors—spread by activist investors, they suggested—that they might be undergoing a change of heart.

In an interview, Sen. Bob Corker, the Tennessee Republican, insists that while he opposes returning Fannie and Freddie to independence as a policy matter, he has nothing against the GSE shareholders. "Those individuals have rights, and nothing we've done has had anything to do with interfering with those rights," he claims. "They'll have their day in court. At the same time, this is just a fact: These entities would not be generating one penny of income if the federal government wasn't standing behind them."

Journalist McLean doesn't second-guess the government's decision to put the GSEs into conservatorship in the first place. "I have a hard time arguing with things done in the fog of war," she explains. "But morally, the third amendment was done in a calm and happy time. It was calculated. The reason that has been articulated for it does not make sense, and it's pretty clearly not true. That's incredibly unpleasant for anybody that cares about the abuse of government power."

She's right. And the law isn't as legalistic as cynics sometimes think. Gut checks count.

The spectacle of a conservator wiping out shareholders just as the companies he's supervising are about to have their best years in history simply doesn't smell right. It's hard to picture the Supreme Court letting it stand.

HERE TODAY, HERE TOMORROW

STORING ALTERNATIVE ENERGY HAS COME A LONG WAY

THE GOOD NEWS: Soon almost any company or consumer will be able to renounce fossil fuels and start participating in the future of a cleaner, smarter energy ecosystem.

The reason is the development of energy storage technologies to make this grand clean energy transition a reality, as agreed upon by government, scientists and the business world.

With renewable energy, "you have to use it when you're generating it," says Sibu Janardhanan, vice president of energy solutions at Gexpro, a wholly owned subsidiary of Rexel Group. Rexel Group and Gexpro recently launched global programs with the "Energeasy" label promoting energy management and efficiency. "Electricity is something you couldn't store effectively until recently."

Energy storage enables a wind farm to power a factory once the wind has stopped, or solar panels to keep a home warm and lighted, even at night. As such, energy storage is a practice that optimizes energy performance and is encouraged by such organizations as the U.S. Green Building Council, which offers Leadership in Energy & Environmental Design (LEED) points for the technology.

The list of storage technologies ranges from the world's most prevalent method—pumped hydropower—to conventional batteries, flywheels, and thermal and flow batteries.

The energy storage market is set to swell to an annual installation size of 6 gigawatts (GW) in 2017 and to over 40 GW by 2022, from an initial base of only 0.34 GW installed in 2012 and 2013, according to data from market research firm IHS cited by the Energy Storage Association. In the U.S. alone, hundreds of companies and thousands of workers are building commercial storage systems.

Gexpro, one of the largest North American electrical distributors, is jostling to break into this exploding energy storage market. According to Janardhanan, the vision of James F. Hibberd, senior vice president and general manager of Gexpro, is to innovate and create customized key solutions and services for customers. The company focuses on three elements: energy reduction, energy production, and Gexpro's newest offering involving battery storage under the "Energeasy" label.

"With the rapidly changing technologies in the energy arena, a key advantage of Gexpro is our team of technical energy experts who stay abreast of all the latest advances emerging into

the marketplace," Janardhanan says.

In fact, Gexpro's new battery storage offering is one of them; referred to as "batteries with brains," it "has innovative technology that responds to the behavioral patterns of the end user," Janardhanan says. "Now our customers can really harness the power of their renewables technology that they've invested in, by storing the power when it's generated and redeploying it only when it's needed," which can include selling excess energy back to the electrical grid.

Not all innovative energy businesses today focus solely on conventional energy storage. Some innovate, for example, by converting surplus energy into something else useful in its own right.

Three technologies will lead the energy storage field—hydrogen, heat, and battery technologies—according to a March 2015 study authored by 32 companies with analytical support from McKinsey & Company. One key conclusion of the study was that "conversion of electricity to hydrogen for use outside the power sector has the potential to productively utilize nearly all excess renewable electricity that would be curtailed under high renewable energy production scenarios."

"The key is to deliver the most value from the energy that is being stored," says Daryl Wilson, CEO of Hydrogenics, a Canada-based company that has established itself as a global player in the rapidly growing market for hydrogen energy storage technology. Their patented hydrogen technologies are being used by major energy players such as E.ON and Enbridge, as well as other utilities, manufacturers, and transportation authorities in Europe, Asia, and North America.

Innovation drives Hydrogenics' development of this new energy storage technology, known as "power-to-gas." The application uses hydrogen's exceptional capacity for storing energy to capture surplus power generated by wind and solar sources. The surplus energy is converted to a much more storable form of energy—hydrogen—which is used in numerous industrial applications, and as a fuel for fleets of commercial and private vehicles and trains. Last May, Hydrogenics won a €50 million contract to build hydrogen-fueled commuter trains with Alstom Transport.

"This isn't some sort of Jules Verne story," says Wilson. "This is happening now. We have reached

"ELECTRICITY IS SOMETHING YOU COULDN'T STORE EFFICIENTLY UNTIL RECENTLY."

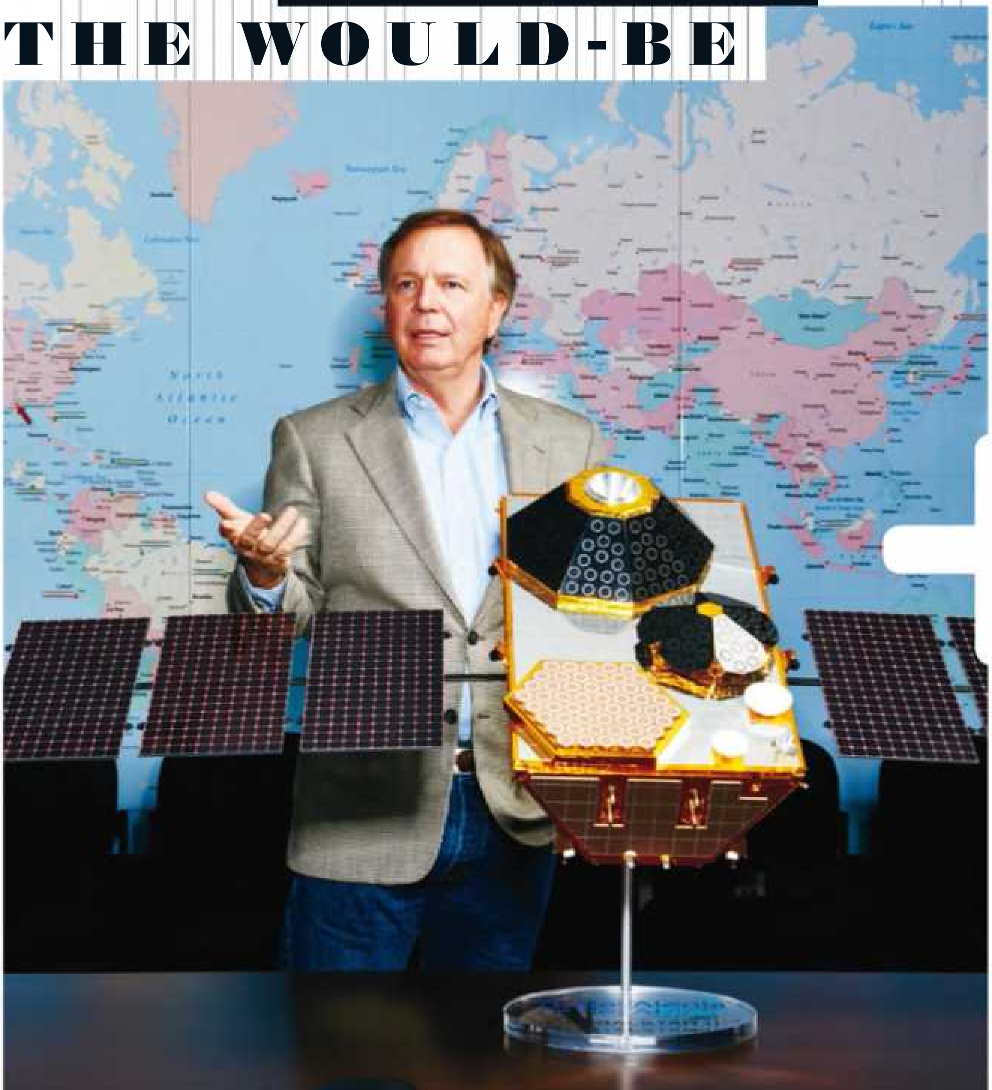
—SIBU JANARDHANAN, VICE PRESIDENT OF ENERGY SOLUTIONS, GEXPRO

the proverbial tipping point where commercialization of Hydrogenics' proprietary technology is being scaled up to meet global demands for clean, safe energy storage."

To this point, in Europe DNV KEMA reports over 30 hydrogen storage installations. Hydrogenics has more than a dozen projects on the ground, and another 80MWs in proposals pending.

And the future? "Ongoing innovation, manufacturing scale-up, and ramping demand will enable ongoing cost-cutting," explains Wilson. "Our vision is to keep pushing our hydrogen technology so it becomes the most cost-effective, technically advanced energy storage system available. That's what our customers want."

• THE WOULD-BE



PHOTOGRAPH BY
DAYMON GARDNER

PHOTOGRAPH BY
MARK PETERSON

WI-FI KINGS

BY STEPHEN GANDEL

A Denver real estate developer who controls a struggling satellite-phone company has teamed up with a self-taught expert and hatched a plan to convert a slice of the company's radio spectrum to new Wi-Fi supply—and charge for it. They say it's worth billions. Tech giants like Google and Microsoft oppose the duo's gambit. And one of the loudest short-sellers on Wall Street says it'll never work.

From left: Globalstar CEO and majority owner Jay Monroe with a model of one of its satellites at the company's headquarters in Covington, La.; wireless technology consultant John Dooley with his spectrum analyzer in New York's Times Square

JOHN DOOLEY HAS a machine that he takes everywhere he goes. He's carried it with him down country lanes in Vermont, into the middle of the Mojave Desert, and up a mountain trail in Northern California. He has set up his machine in New York's Times Square, and in downtown Boston, Washington, D.C., Denver, and nearly every other major city in the U.S.

The device, which costs about $40,000, is called a spectrum analyzer. And for years Dooley, a consultant and self-appointed expert who left college after a year, has been measuring and recording wireless data traffic—the billions of transmissions that travel back and forth from smartphones and laptops to cell towers, routers, and other Internet connections. If you're checking Facebook on your iPhone and Dooley is nearby, his machine will see it and light up. And if hordes of people are posting pictures to Instagram and streaming Netflix videos all around him, the display on Dooley's machine will turn bright red. Dooley takes the readings to track which parts of the electromagnetic spectrum—the frequencies that carry everything from radio signals to X-rays—are degrading from overuse. He likes to think of himself as a "21st-century version of a land surveyor."

What Dooley's machine is telling him now is this: Wi-Fi is headed for a collapse. The preferred Internet connection for most users is quickly becoming overcrowded, he argues, and could soon be overwhelmed.

There's no denying that we're in the midst of a digital deluge. Already there are more than 7 billion Internet-enabled mobile devices on the planet. And the coming revolution in the so-called Internet of things—think refrigerators monitored by connected sensors—means there will be billions more devices connecting by Wi-Fi in the next few years. According to Cisco, the amount of data transmitted via Wi-Fi is projected to nearly triple in the next four years. The problem, says Dooley, is that the signals from all our wired devices are increasingly beginning to bump into one another, causing performance to suffer. "Left as it is, Wi-Fi as we have come to know it will eventually cease to exist," says Dooley. "It's the classic tragedy of the commons."

But Dooley, 38, claims he has a solution to the looming crisis. And his plan to "save" Wi-Fi has become one of the most talked-about and contentious issues in the industry—with opponents ranging from Microsoft and Google to hearing-aid manufacturers to a few very vocal hedge fund managers.

A few years ago Dooley teamed up with Jay Monroe, 60, the billionaire majority shareholder and CEO of Globalstar, a struggling publicly traded satellite-phone company. In the 1990s, Globalstar was granted the rights to a number of slices of spectrum to make its growing satellite-phone business work. The satellite-phone business, though, isn't booming, and Wi-Fi use is. So Dooley and Monroe have hatched an idea that they claim will fix Wi-Fi's capacity problem and at the same time create billions of dollars in value for Globalstar.

Globalstar's plan, designed by Dooley and called terrestrial low-power service, or TLPS, would convert one of the company's pieces of satellite spectrum into a private Wi-Fi channel and charge for access to it. Monroe declines to get too specific about how this payment system will work. He does say that to provide the service Globalstar would probably have to partner with a bigger tech company, such as Verizon or Comcast, which could then offer the service exclusively to its customers. Use of the current Wi-Fi spectrum is technically free—though hotels and airports often charge for access to their local networks. But Monroe says Globalstar's new Wi-Fi network will be faster and more secure than what exists today. And in the age of the hack, Monroe thinks the latter could be what actually gets customers to sign up. "Unlike public Wi-Fi, we will know who is on our network," says Monroe.

If successful, the spectrum conversion could make Monroe, who owns 63% of Globalstar, an enormous pile of money. In fact, just the prospect has already boosted the value of his company hugely. After Globalstar's application made it past the Federal Communications Commission's initial review stage in 2013, the company's stock price soared from below 30¢ per share to nearly $4.50. At its recent share price of $2, Globalstar's market value

Dooley's spectrum analyzer registers heavy Wi-Fi use, like Netflix streaming and Instagram uploads.

was about $2.5 billion. Analyst Jason Bernstein of Odeon Capital, who has a buy rating on the company's stock, calculates that the value of Globalstar's spectrum if converted to Wi-Fi would be some $4.4 billion. The FCC declined to comment on when it will rule on Globalstar's application. But Monroe says he expects to get an answer by early 2016.

Meanwhile, a growing chorus of critics say that Globalstar's warnings about a Wi-Fi apocalypse are completely unfounded—and that its plan, rather than fixing spectrum congestion, would actually make the situation much worse.

One of Globalstar's loudest opponents is hedge fund manager Sahm Adrangi, 34, founder of the $400 million Kerrisdale Capital. Adrangi announced last year that he was shorting, or betting against, Globalstar's stock and, à la Bill Ackman, made his case in a scathing 66-page report. He has since maintained a website (FactsAboutGlobalstar.com) arguing against the company's plan, which he says won't work, and has filed letters with the FCC urging the agency to reject Globalstar's application. Adrangi thinks the $4.4 billion estimate of what Globalstar's Wi-Fi network could be worth is ridiculous. His estimate: zero. "The company's Wi-Fi plan is worthless," says Adrangi, "and the company's stock is worthless."

Perhaps an even bigger problem for Globalstar is the widespread pushback it faces from the Wi-Fi industry. Over the past two years the FCC has received more than 200 comment letters about Globalstar's application, and the vast majority of the letters call for the agency to give Globalstar the thumbs-down.

Some of Globalstar's critics, like Google, object primarily to the fact that the company wants to charge for its spectrum. But the biggest concern of most critics—including Microsoft, Sprint, networks ABC and CBS, and trade groups representing Wi-Fi and Bluetooth device makers—is that converting Globalstar's segment of spectrum to Wi-Fi will cause massive interference with other signals. Dooley's plan to save Wi-Fi, in other words, could end up causing the very collapse that he is warning about.

GLOBALSTAR'S HEADQUARTERS is a boxy three-story building in Covington, La., an hour's drive north of New Orleans, most of it across the 24-mile-long Lake Pontchartrain Causeway. The office shares a parking lot with a Hilton Garden Inn. Three doors down is a daiquiri bar with a drive-through window.

The company was created in the early 1990s as a joint venture between Qualcomm and Loral to provide so-called low earth orbit communications, such as satellite-phone service. Globalstar was granted its spectrum allocations by the FCC in 1995, and by early 2000 it had 48 satellites in orbit and was ready to operate. The business quickly crashed and burned. Globalstar filed for Chapter 11 in 2002. That's when it attracted the attention of Monroe, a billionaire investor looking to expand into communications technology. Through his investment company, Thermo Capital Partners, Monroe bought a controlling stake in 2004 and guided Globalstar out of bankruptcy.

A few years after Monroe bought in, Globalstar's satellites started falling out of the sky. Satellites do that. But it happened sooner than Monroe had expected. And the company was forced to suspend phone service, ballooning losses. The stock price crashed from $17 to well under $1. Monroe had to pump more than $600 million of his own money into the company to get its satellite network back up and running, on top of the $43 million he had paid to acquire 81% of the company out of bankruptcy.

Inside Globalstar's office there's little evidence that it is trying to be a player in Wi-Fi. In fact, there's almost no one in the building working on the project. Monroe has relied on Dooley and other outside consultants for his Wi-Fi plans. One of the company's bestselling products is its $149 Spot GPS device, which includes an emergency-call button used by mountain climbers and others. Globalstar also sells tracking devices that can be used for cargo, as well as its satellite phones. But it has just a small fraction of the market compared with rival Iridium

MARK PETERSON—REDUX

Communications. In the first nine months of 2015, Globalstar had $68 million in sales and over $84 million in losses, after excluding the accounting effects of a derivative.

Monroe originally made his money buying up power plants in his home state of Colorado in the 1980s during a period of deregulation-driven turmoil in the utility business. In the 1990s he bought real estate in downtown Denver, including the abandoned, historic Union Pacific Freight House, which is now a popular eating and shopping spot next to Coors Field. He began buying fiber-optic networks in the early 2000s on the cheap, when everyone else thought there was too much supply. That's what led him into the telecommunications business and Globalstar. Last year Bloomberg estimated Monroe's net worth at $3.2 billion. He says he now splits his time between Denver and a spartan office on the first floor of Globalstar's headquarters.

On paper, Globalstar looks as if it could be Monroe's biggest haul yet, even after last year's stock plunge. Monroe's stake in the company, minus what he's put in, is now worth over $600 million. (Monroe doesn't draw a salary from the company.) Monroe says his investment in Globalstar isn't fundamentally different from buying real estate or power plants. "We are about assets," says Monroe. And while he maintains that the satellite-phone business is viable, he admits that from the start the asset that attracted him to Globalstar was its spectrum. It is a finite and increasingly valuable commodity.

"SPECTRUM" IS THE GENERAL TERM for the range of waves that carry all wireless transmissions—from shortwave radio to long-wave satellite signals. In the U.S., the FCC regulates who can use what part of the spectrum and for what. Before the advent of smartphones, that was a considerably less complicated and less lucrative task. But the value of controlling portions of the radio band has been rising almost exponentially. In its most recent spectrum auction, earlier this year, the FCC raised a total of $44.9 billion, with carriers Verizon and AT&T spending more than $10 billion each.

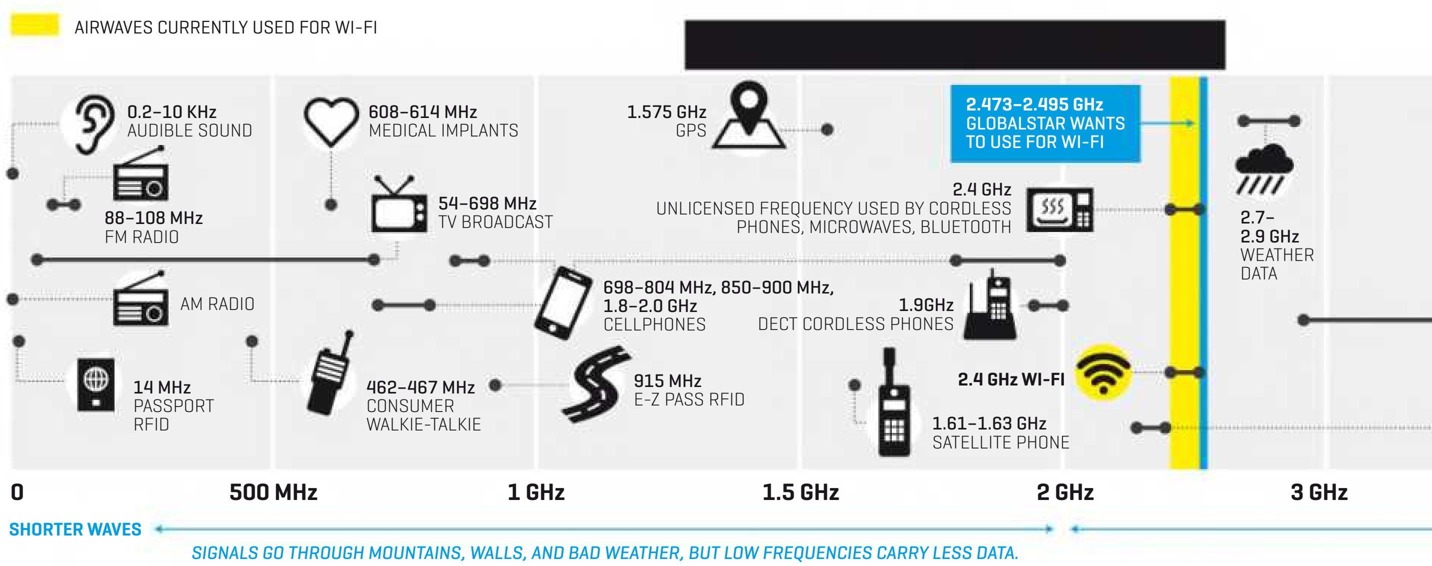
Most of the existing Wi-Fi usage lies in the 2.4 gigahertz band. (The length of radio waves is measured in megahertz and gigahertz, and 2.4 gigahertz is relatively short.) In the 1980s the FCC declared that slice of the spectrum free for everyone to use; it was the same frequency used by microwave ovens and thought to be otherwise worthless. But because it was free to access, inventors began experimenting in the 2.4 gigahertz zone and ultimately developed what became Wi-Fi.

As demand for Wi-Fi grows, the debate over how to expand capacity has become increasingly contentious. To promote his solution, Monroe has attached himself to a cause: Save Wi-Fi. He sometimes uses questionable rhetoric to make his pitch. "The FCC's view is that Wi-Fi is clogged up," says Monroe. "No question that there is a congestion problem. People who deny Wi-Fi spectrum problems might as well deny the Holocaust."

Despite that over-the-top assertion, it turns out that there is anything but a consensus on the extent of the problem. Pierre de Vries, a spectrum expert who is a senior adjunct fellow at the Silicon Flatirons Center at the University of Colorado at Boulder, wrote in a paper last year that Wi-Fi congestion was mostly hype. "There are places at times that have more people who are trying to use Wi-Fi than available capacity, but

From Radio to Satellites

The wireless spectrum is an increasingly crowded place, especially for Wi-Fi. Globalstar wants to add a new channel in the 2.4 gigahertz range, where most Wi-Fi signals are currently transmitted.



GRAPHIC SOURCE: FCC

I think that is more of a question of how those systems were engineered," says de Vries.

In early 2013, then FCC chairman Julius Genachowski raised concerns about Wi-Fi undercapacity. Since then, though, the FCC has opened up more spectrum for Wi-Fi, this time in the 5 gigahertz range. Some think the new spectrum has already resolved the congestion problems for Wi-Fi.

Others give more credence to the warnings of Monroe and Dooley. Jon Peha, a professor at Carnegie Mellon and a former chief technologist at the FCC, says he believes congestion risk, while manageable, is real. He says the Internet of things might not be a problem now. But like smartphones, those devices are going to get only more sophisticated and bandwidth-hungry. "We have increased the amount of spectrum, but usage continues to grow," says Peha.

DOOLEY FIRST CONTACTED Monroe in 2010 to solicit money from the Globalstar CEO for a venture capital fund that Dooley was trying to launch to invest in wireless technology. Monroe declined, but the two began talking. Dooley, drawing on his encyclopedic knowledge of all things spectrum, pointed out to Monroe that part of Globalstar's allocation had originally been designated for Wi-Fi before it was given to Globalstar for satellite transmissions. Monroe hired him to help Globalstar make the conversion.

Dooley says Globalstar's spectrum is Wi-Fi-ready now. It just needs to set up a connection for users, which is what TLPS does. Globalstar says its plan will increase Wi-Fi speeds for everyone—not just its own users. Moving some customers onto Globalstar's paid service, Monroe says, will relieve congestion in free Wi-Fi as well. In all, Globalstar says its plan will increase throughput times, a measure of speed, by 40%.

Critics of Globalstar's plan say that any benefits of adding the new capacity will pale in comparison to the new problem it creates: a phenomenon called "adjacent channel interference." The antenna on most Wi-Fi devices is pretty small and cheap. And so the signals tend to bleed outside the channel they are supposed to be on. That's what may be the main source of Wi-Fi interference now—signals from different bands, or channels, bumping into one another, rather than a lack of space. Add another channel, critics say, and the problem will only get worse. What's more, Globalstar's proposed channel is extremely close to other high-use 2.4 gigahertz bands, including those that carry Bluetooth. Globalstar denies that the proximity of the channels is problematic and says its testing shows that TLPS doesn't cause congestion.

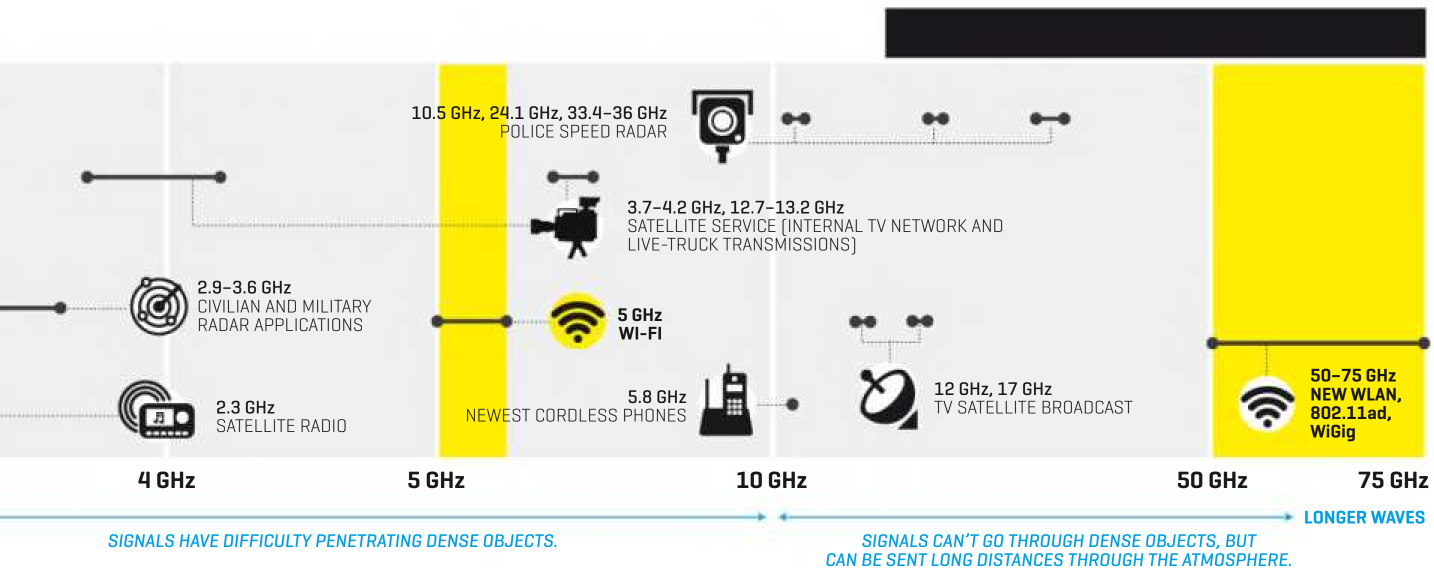
"The company's Wi-Fi plan is worthless," says shortseller Adrangi, "and the company's stock is worthless."

In March, in an effort to satisfy critics, Globalstar ran a demonstration of TLPS at FCC headquarters and invited its opponents to bring their own equipment. But the test has only provided Globalstar's opponents with more talking points. CableLabs, which does testing for the cable industry, said it detected an increase in interference when Globalstar turned on TLPS. Globalstar says CableLabs put five routers on one conference room table, which is what Globalstar says caused the interference.

Mark Powell, who heads Bluetooth SIG, the organization that represents Bluetooth devices, also characterizes the results of Globalstar's test as not promising. "When you delve into the test results, there is a lot of smoke and mirrors," says Powell. "Globalstar's TLPS interferes with Bluetooth devices, and it does it in a destructive way."

Microsoft has led the charge against Globalstar. In a May letter to the FCC, the software giant said its analysis of Globalstar's plan was that it's likely to lead to a worse experience for Wi-Fi users. What's more, Paul Mitchell, a general manager of technology policy at Microsoft, says it's a very bad prec-

ANDRAGI: JENNIFER S. ALTMAN—THE WASHINGTON POST/GETTY IMAGES



edent for the FCC to hand out exclusive rights to Wi-Fi to any one company. "The whole theory of Wi-Fi is that it is shared. That's what has led to a tremendous amount of innovation," says Mitchell.

Google's argument is more one of public policy. The search giant thinks the new Wi-Fi band will reach only a limited number of customers in Globalstar's hands. Google would prefer the FCC make the channel free to everyone, like the rest of Wi-Fi. But the bigger issue is this: If Wi-Fi really has a congestion problem, adding one private channel is not going to solve it.

Monroe views the pushback as merely incumbents not wanting a new competitor. The fact that it's coming from players as large as Google and Microsoft, he says, is evidence that he has something really valuable. Monroe also says that the fact that Google isn't making a technical argument proves his point that the technology works. Globalstar has talked to a number of companies that are interested in partnering with it to roll out TLPS, according to Monroe, but he won't say who.

In September, Globalstar released the results of a test it did on a college campus in Chicago over the summer. This time Globalstar, in a filing to the FCC, said adding TLPS to the campus's existing Wi-Fi network increased capacity by 90%, and it found no interference issues. But Microsoft, once again, called Globalstar's testing method flawed. The tech giant said the types of Wi-Fi access points that Globalstar used were more expensive and better equipped at filtering interference than those typically used in Wi-Fi systems. What's more, Microsoft noted, if you really wanted to test a high-density environment, a student center in mid-August is probably not your best choice.

Adrangi, the short-seller, says the question of whether TLPS will work or whether it causes too much interference is moot. To Adrangi, the much larger point is that even if Globalstar does get its plan approved, the company is still in trouble. Not enough people will use its service, he argues, because we no longer need it. The new 5 gigahertz band has 22 channels in it, and it's free. Plus, it's faster than 2.4 gigahertz. "Who is going to pay for worse Wi-Fi?" asks Adrangi.

When it's pointed out that investors are still valuing Globalstar at around $2 billion, Adrangi, who has already made a lot of money off his Globalstar short, simply shrugs, "There are many companies that aren't trading at $0 that deserve to be."

Without Wi-Fi, Globalstar's value could collapse. The company has been close to bankruptcy a number of times since 2004, but each time Monroe has injected more capital. Even Bernstein, the analyst who rates it a buy, says that Globalstar will be close to burning through its existing cash by the end of 2016. Of course, Monroe could always bail it out again.

IF THE FCC DOES APPROVE Globalstar's application, the company will be relying on Dooley to help implement its plan. Though he remains a contractor and the terms of his compensation aren't disclosed, Dooley is operating as Globalstar's main Wi-Fi expert, including on calls with analysts.

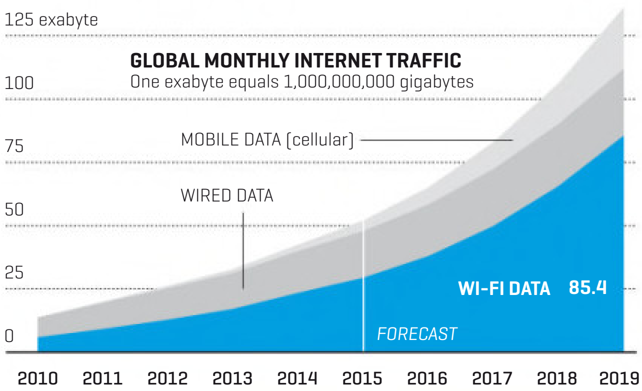
His credentials for the job are hard to assess. Dooley, who dropped out of Worcester Polytechnic Institute after his freshman year to pursue a business venture, says he has spent two decades investing in and developing wireless technologies. He was awarded a first patent as a teen in 1995 and a second one just this October. He claims that he has several more applications pending. Dooley has an early-stage company called Nanoton, which he says is developing nanotechnology to improve wireless antennas. The venture fund that he was trying to raise when he first contacted Monroe never took off. But earlier this year a company that Dooley formed with hedge fund investors bought $398 million of spectrum in an FCC auction. And then there's Globalstar.

Just because Dooley's track record is sparse doesn't mean his warnings should be ignored or that his TLPS plan won't create value for Globalstar. Devin Akin, a Wi-Fi architect and a cofounder of one of the industry's top accreditation programs, says 2.4 gigahertz congestion is something we have to worry about. Akin thinks the long-term answer is 5 gigahertz. The problem is that 2.4 gigahertz chips are cheaper, and they still have better range. So he doesn't think enough customers or products will switch bands until Wi-Fi speeds really slow down.

In the meantime, that creates an opportunity for Globalstar, even if its technology won't really solve the problem. "It's absolutely absurd to say that Globalstar's plan will save Wi-Fi," says Akin. "But that doesn't mean they won't be able to make some money off it for a few years." And then maybe all the time Dooley has spent with his machine will finally pay off.

Digital Deluge

As the number of Internet-enabled devices proliferates, the amount of data transmitted by Wi-Fi will continue to surge.



GRAPHIC SOURCE: CISCO VISUAL NETWORKING INDEX: GLOBAL MOBILE DATA TRAFFIC FORECAST

HENNION & WALSH

It comes down to trust.®

Get your free guide to tax-free municipal bonds.

Please call (800) 316-2804 right now.

Municipal Bonds Offer Three Big Advantages.

Advantage #1: The potential safety of principal.

If you're a prudent investor in need of investment income, you don't want to gamble with your precious nest egg. If you're nearing retirement or are already retired, you want to do everything you can to make sure your investments can support your retirement. That's why our free Bond Guide makes "must" reading.

Advantage #2: The potential for regular, predictable income.

When you invest in municipal bonds, you typically get interest payments every six months unless they get called or default. Because default rates for the investment-grade-rated bonds favored by Hennion & Walsh are historically low (according to Moody's 2012 research,*) you can enjoy a regular income stream in retirement. Please note that if a bond is called, any bond you may buy in the future with the proceeds, may earn more or less than the original called bond.

Advantage #3: The potential for tax-free income.

Good news! Income from municipal bonds is NOT subject to federal income tax and, depending on where you live, may also be exempt from state and local taxes.

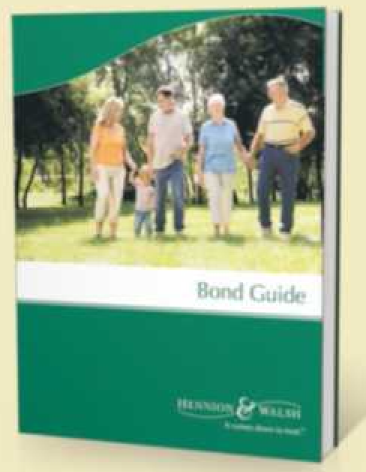
About Hennion & Walsh

Since 1990, Hennion & Walsh has specialized in investment grade tax-free municipal bonds. The company supervises over $2 billion in assets in over 15,000 accounts and provides individual investors with institutional quality service and personal attention.

Dear Investor,

We urge you to call and get your free Bond Guide. Having tax-free municipal bonds as part of your portfolio can help get your investments back on track and put you on a path to achieving your investment goals. Getting your no-obligation guide could be the smartest investment decision you'll make.

 Investing in bonds involves risk including possible loss of principal. Income may be subject to state, local or federal alternative minimum tax. When interest rates rise, bond prices fall, and when interest rates fall, bond prices rise. *Source: Moody's Investor Service, March 7, 2012 "U.S. Municipal Bond Defaults and Recoveries. 1970-2011." Past performance is not guarantee of future results.



Here's just some of what you'll learn . . .

Why municipal bonds may deserve a place in your portfolio. (Page 1)

Why insured bonds often provide an extra degree of security. (Page 2)

Why municipal bonds can potentially provide safety of principal. (Page 3)

How municipal bonds can potentially provide tax-free income. (Page 3)

Strategies for smart bond investing. (Page 4)

Municipal bond facts every investor should know. (Page 4)

Plus lots more!

FREE Bond Guide

Without Cost or Obligation

CALL

(800) 316-2804

(for fastest service, call between 8 a.m. and 6 p.m.)

Hennion & Walsh, Bond Guide Offer
2001 Route 46, Waterview Plaza
Parsippany, NJ 07054

WHILE YOU WERE OUT

Disrupted to Death

In an ever-changing marketplace that rewards the creation of wealth, the life span of companies continues to shrink. That can only be good for employees in the end, right? ***By Stanley Bing***

THIS IS TRULY A GREAT TIME to be in business. Almost 2036! So much has happened in the past 20 or so years. We all have cranial implants that make handheld electronics unnecessary. And none of us knows how to drive, of course. We just sit there in our identical cars and trundle along at 44 miles per hour in complete safety, staying in touch with the hive mind. From San Mateo to Sri Lanka, there's nothing we don't share. It's a terrific feeling. When somebody we don't know has a baby 10,000 miles away, we all peek at the hologram together. What a cute little sprout! One world, one feed. That's us.

There are some downsides, though. I went to visit my friend Walter, for instance. He was watching his personal robotic assistant pack up his workstation and feeling very depressed. His corporation had just aged out at 18 years. Didn't you know? If you don't, you should. It probably has personal implications for you.

You must've heard the story. Sometime back in late 2015, the powerful mogul-types who used to attend nonvirtual conferences and wield their power by propagating the latest shared wisdom came to the realization that the life span of successful corporations was shrinking. The average age of companies on the S&P 500 had fallen from 90 to 61 to 18 years. And surely it would only go lower in the future.

The interesting thing was, they were quite jubilant about it. They viewed it as progress! They all chuckled about how much money could be made from the continual deconstruction of things people had constructed. But why not go a step further, they wondered, and *require* companies to shut down at age 18? And because they were all immensely influential and mega-rich, they said it—and it was so. Since then, no corporation that wants to preserve its reputation for excellence and innovation can dare to live longer than the mandated 18 years and maintain a decent growth curve on Wall Street. And really, the best companies never make it past 14.

Which brings us to Walter, whose middling firm just hit 18 and now must be disrupted to death. "It doesn't seem right," he said, as the robot put his last few personal effects into a cardboard box. He stared across the communal space that had once been shared by hundreds of fellow employees. Off in a corner, a relatively young woman was sitting and staring at a dead workstation, weeping silently.

"That's Bollinger," said Walter. "She's been here since we were a startup. Climbed the ladder to management. Had a whole team. I heard she was on the brink of something."

"That's tough," I said. "But isn't that the way it's supposed to be? Mustn't we disrupt employees out the door periodically so that companies can remain relevant in this ever-changing, highly competitive marketplace that rewards innovation and creation of wealth?"

"Yes," said Walter sadly, "there *was* wealth created. Just not for anybody in this room." He stared out the window, where a self-flying helicopter was warming up on the roof of an adjacent building. We watched as three relaxed-looking VCs in open-collared shirts climbed in and got comfortable. The chopper lifted off and disappeared into the afternoon sky.

"There they go," said Walter. "Back to Stanford."

"Stanford?" I inquired.

"Hosting another virtual conference on the future of disruption," Walter replied.

The robot handed him his box, and we walked together in silence to the elevator. "I know it'll be a good thing in the end," he said philosophically. "I'll be okay. Eighteen years is a good long run for a corporation. We had our shot."

The elevator dinged. We got in. Then we went out for a whole bunch of beers. I ended up paying. He tried to pick up the tab, but for some reason his credit card was declined. I guess that had been disrupted too.

Follow Stanley Bing at stanleybing.com and on Twitter at @thebingblog.

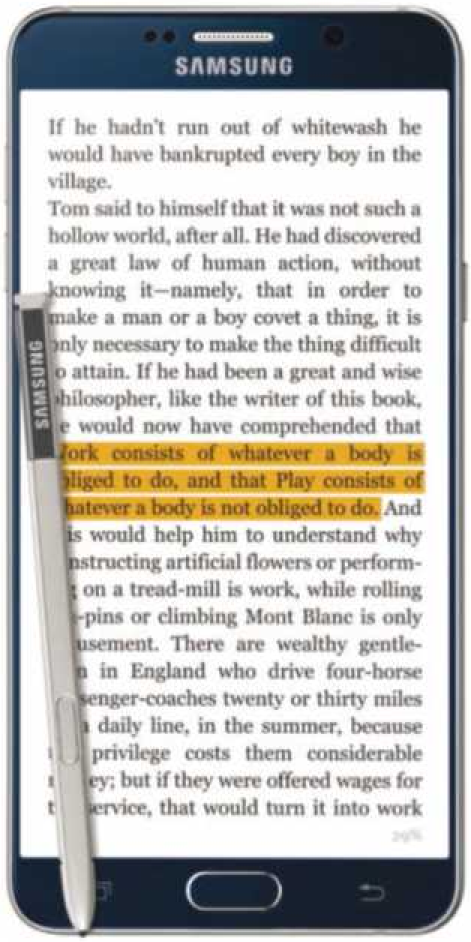
ILLUSTRATION BY GUY SHIELD

Fortune (ISSN 0015-8259) is published monthly, with extra issues in March, June, September, and December, by Time Inc. Principal office: 225 Liberty St., New York, N.Y., 10281-1008. **U.S. subscriptions:** $22.00 for one year. Member, Alliance for Audited Media. **POSTMASTER:** Send all UAA to CFS (See DMM 507.1.5.2); **Non-Postal and Military Facilities:** Send address corrections to *Fortune,* P.O. Box 62120, Tampa, Fla. 33662-2120. Canada Post Publications Mail Agreement No. 40110178. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Return undeliverable Canada addresses to: Postal Stn A, P.O. Box 4321, Toronto, ON, M5W 3G8. GST #888381621RT0001. **Customer Service and Subscriptions:** For 24/7 service, please use our website: www.fortune.com/customerservice. You can also call 1-800-621-8000 or write to *Fortune* at P.O. Box 62120, Tampa, Fla. 33662-2120. PRINTED IN THE U.S.A. **Subscribers:** If the postal services alert us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within two years. Your bank may provide updates to the card information we have on file. You may opt-out of this service at any time. **Mailing List:** We make a portion of our mailing list available to reputable firms.

SAMSUNG

TEXT.

BOOK.



SAMSUNG
Galaxy S6 edge+

SAMSUNG
Galaxy Note5

Choosing between the beautiful Galaxy S6 edge+ with over 3.6 million pixels on the largest-ever dual edge display and the powerful Galaxy Note5 with Multi Window and the most advanced S Pen yet is a textbook case of a no-brainer. You're right either way.